Interactive Technologies Institute

Advisory Board Report 2024

designing interactive systems and services that harmonize the entanglements between humans, nonhumans and digital technologies.

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Statement of the President

As we reflect on the past, we must acknowledge our remarkable journey. The Interactive Technologies Institute, founded through a visionary partnership with Carnegie Mellon University, has grown from its beginnings in the Madeira Islands to become a leading interdisciplinary research unit at Instituto Superior Técnico, University of Lisbon.

Our commitment to exploring the field of human-computer interaction has driven us forward, guided by a vision of how digital technologies can responsibly shape an inclusive and sustainable future. Numerous research projects, supported by international funding bodies, have resulted in groundbreaking tools and methodologies, demonstrating our ability to innovate and push the boundaries of what's possible.

In response to the recommendations from our advisory board, we have revised our vision, mission, and scientific organization to further align with global challenges and emerging opportunities. This strategic shift is designed to strengthen our position as we prepare for another round of international evaluation for the 2025–29 funding period. This pivotal process will determine the future of our institute over the next five years.

Our success has been amplified through our partnerships with leading academic institutions, industries, and government bodies. These collaborations have enriched our research and empowered us to equip the next generation of researchers with the knowledge and skills necessary to thrive in an evolving digital landscape. At our laboratories in the Beato Innovation District and Madeira Islands, our talented faculty, researchers, and students work together to redefine what's possible.

We are now embarking on a new chapter, marked by the proposal for a new building in the Beato Innovation District. This addition will further expand our capabilities and foster even more interdisciplinary collaboration with other groups at Técnico. It symbolizes our continued growth and our commitment to remaining at the forefront of innovation in close collaboration with local communities.

At the core of our institute is an interdisciplinary approach, drawing from diverse fields to address the complex societal challenges of our time. We are deeply committed to ensuring digital technology is a force for good - enriching lives, protecting the environment, and paving the way for an inclusive digital future.

Inclusivity, sustainability, and collaboration are the pillars upon which the Interactive Technologies Institute stands to promote new relational aesthetics. We remain dedicated to advancing research, design, and interdisciplinary collaboration as we look to the future. With your continued support and trust, we are confident that we will shape a future where the seamless integration of humanity and technology creates a meaningful, lasting impact.

Thank you for being an integral part of our journey.

Nuno Jardim Nunes

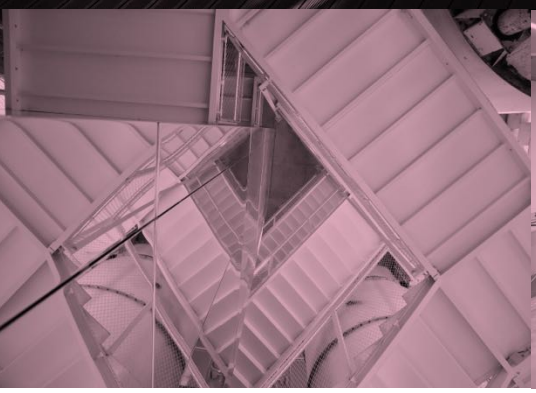
History

Emerging from the Carnegie Mellon International Partnership, the Interactive Technologies Institute is a research institution dedicated to advancing digital technology and its applications across various fields. Established in 2010 in Madeira Islands, Portugal, the Interactive Technologies Institute later relocated to Instituto Superior Técnico, University of Lisbon, where it has since become a hub for interdisciplinary research, attracting experts from engineering, design, social sciences, arts, and humanities.

The institute's founding vision was to create a unique environment fostering innovation and collaboration in the interdisciplinary field of human-computer interaction. Inspired by our partnership with HCII at Carnegie Mellon University, we sought to bring a fresh vision to a different society, economy, cultural and environmental context. From the outset, the Interactive Technologies Institute has concentrated on understanding the intricate relationships between humans, the environment, and technology to shape a sustainable and inclusive future for all. Over the years, we have undertaken numerous research projects, leading to the development of innovative tools and novel design methods. These projects have often been supported by prestigious funding bodies such as the European Commission and the Portuguese Foundation for Science and Technology, resulting in numerous publications, patents, and spin-offs.

Our commitment to interdisciplinary research has facilitated the creation of robust partnerships with leading academic institutions, industry, and government agencies worldwide. Moreover, the institute's educational programs have played a crucial role in training the next generation of researchers, equipping them to address the challenges of a rapidly evolving digital landscape. Critically, since digital is the technology of scale of the 21st century, solutions for our most pressing problems will need to leverage responsible and sustainable digital technologies.

Bringing together faculty members from Instituto Superior Técnico, Faculty of Fine Arts, and Faculty of Architecture of the University of Lisbon and the University of Madeira, our labs are situated in the Creative Hub of Beato (in Lisbon) and at the "Centro Cultural e de Investigação do Funchal" of Funchal and ARDITI (in Madeira Islands). The Foundation for Science and Technology, the European Commission, and benefactors such as Fundação Santander, Feedzai, WYGroup, and the Municipalities of Lisbon and Funchal generously support the research at Interactive Technologies Institute.



Hub Criativo do Beato

Centro Cultural e de Investigação do Funchal

Vision

The Interactive Technologies Institute (ITI) strives for research excellence through ethically mindful and just design of innovative interactive systems and services that harmonize the entanglements between humans, non-humans, and digital technologies. Through our research practice, we aim to foster a sustainable, inclusive, and aesthetically appealing future for all.

Mission

Our mission at the Interactive Technologies Institute is to achieve research excellence by fostering innovation, collaboration, and progress through digital technologies research. Our institute is a hub for diversity, joining efforts from different cultures and disciplines, including engineering, design, social sciences, arts, and humanities, all united by a shared vision: to research connections and bridges between humans and non-humans through creative and ethically just interactive technologies.

Our overarching mission is to promote research in the responsible and sustainable use of digital technologies to address the challenges of the 21st century. Creating scalable, inclusive, aesthetically pleasing, and environmentally conscious solutions is the key to progress. To achieve this, we act according to the following principles:

1. **Understanding technological impact on society**: We research the profound influence of digital technologies on individuals and society. As such, we are committed to thoroughly analysing these technologies' social and ethical consequences on people's lives. By understanding the implications, we can proactively shape technology to benefit the planet and minimise adverse effects.
2. **Building an Inclusive Future**: We research technology as a force for positive change. Our primary focus is inclusivity as we develop new tools and design methods. We strive to ensure that our interactive technologies are accessible to all individuals, regardless of their backgrounds or abilities. Furthermore, affordability is critical to our mission, ensuring that our innovations are within reach for as many people as possible.
3. **Cultivating Creativity and Risk-Taking**: Innovation thrives in an environment encouraging experimentation and risk-taking. We foster a culture of creativity and boldness, empowering our researchers to explore novel ideas and challenge conventional norms. By embracing this spirit, we continually push the boundaries of what's possible, paving the way for groundbreaking digital technologies with sustainability at their core.

4. Pioneering Sustainable Solutions: Sustainability lies at the heart of our mission. We are driven to develop digital technologies that meet the needs of the present and safeguard the future. Our commitment to sustainability extends beyond environmental concerns to encompass social and economic aspects, contributing to a more balanced and equitable world.
5. Striving for Diversity: As an inclusive and interdisciplinary research institute, we cherish the diversity of perspectives that our researchers bring from various disciplines and cultures. By fostering collaboration and knowledge-sharing, we create a dynamic ecosystem that enriches our understanding and accelerates the development of impactful solutions.

We actively engage with academia, industry, and communities in pursuing our mission. Through fruitful partnerships and knowledge exchange, we seek to make a positive and lasting impact on society. Ultimately, the Interactive Technologies Institute endeavours to be at the forefront of shaping a brighter, sustainable, and inclusive future powered by interactive technologies.

LARSyS

The Interactive Technologies Institute is one of the research units of LARSyS Associated Laboratory, the highest-ranked research institution in the Portuguese Science, Technology, and Innovation System. ITI is internationally evaluated and structurally funded through LARSyS in five-year evaluation cycles (2018-22 extended to 2023) and is currently undergoing evaluation for 2025-29.

From its inception, LARSyS has been evaluated as Excellent and awarded the selective status of Associate Laboratory. Seeking to combine theoretical, practical and socio-technical perspectives, LARSyS has diversified its efforts and approaches to essential application domains from space to oceans and urban environments. Overall, LARSyS involves a community of 126 integrated researchers from 16 different nationalities and 217 PhD students, mobilizing more than 55.1M€ of funding (from 2018 to 2023).

LARSyS joins four R&D centres:

- Institute for Systems and Robotics (ISR)
- Center for Innovation, Technology and Policy Research (IN+)
- Interactive Technologies Institute (ITI)
- Marine, Environment & Technology Centre (MARETEC)

This unique combination of research capacities intertwines a rich pool of distinct disciplines and perspectives (e.g., experimental, computational, and theoretical) with impact in different sectors (university, industry, government, and regional administration).

Recognizing that societal challenges cannot be addressed without breaking the traditional academic and scientific silos, LARSyS fosters the combination of a diverse portfolio of research groups, ranging from engineering (electrical and computer, mechanical, bioengineering) through design and social sciences to the frontiers with arts and the humanities. LARSyS groups develop multidisciplinary research agendas in five interdisciplinary Thematic Lines:

OCEAN: Exploration and Conservation.
URBAN: Sustainability and Communities.
AIR: Space and Aeronautics.
LIFE: Engineering for Health and Wellbeing.
INTERACTION: Responsible Human-AI Collaboration.

LARSyS's holistic systems-based approach is supported by integrating two cross-cutting, foundational pillars:

1. a socio-technical perspective giving support to the societal challenges that arise naturally in the thematic lines, involving economics, policy, environment and society;

2. a common methodological framework around "AI, Robotics, Engineering Systems, Models, and Communities" that is pervasive to all application areas.

The critical thrust of LARSyS activity is threefold: research, advanced training, and outreach activities, including public service. Since its inception, LARSyS has been committed to scientific employment, hosting 55 Post-Doctoral Fellows, of which 41 have fixed-term work contracts and 9 are tenured or tenure track. LARSyS is involved in several international doctoral training partnerships with key academic institutions worldwide, which resulted in the graduation of 137 PhD students in 2018-23. Currently, LARSyS hosts 217 PhD students, many of whom have dual, joint degrees or are in cooperation, where LARSyS has a leading role.

In 2025-29, LARSyS will be grounded in AI and robotics as a lab-wide initiative focused on the impact of new technologies in its application areas. AI methods and analysis techniques raise new challenges as they do not scale or respond well to real-time needs. This is particularly crucial when AI interacts with the physical world, a distinctive concern of LARSyS. Future breakthroughs will require research that combines knowledge of algorithms, datasets, domain expertise, the intended applications and their environmental, social, economic and political consequences. They will also require, whenever available, physical models that reduce the need for data and lead to more sustainable, reliable and explainable AI systems. LARSyS will invest in open data and computing infrastructure, shared tools and techniques, and industrial links that could have an impact beyond robotics and engineering systems.

LARSyS will continue to consider AI and robotics the driving technologies underpinning a new generation of devices capable of autonomously performing human-like tasks in the real world. These technologies will dominate in the coming decade, from LLMs to autonomous vehicles. They will influence every aspect of work and home as the maturing of human-AI collaboration, autonomous decision-making, localisation, sensing, and motion control technologies will progressively enable economically viable applications, provide enhanced services and create jobs.

LARSyS adopts an approach that extends beyond human-centered design, concentrating on the advantages that autonomous technologies, along with engineering models and systems, can bring to the responsible development of complex socio-technical systems (STSs). This broader (more-than-human) design perspective is becoming recognized as an effective, evidence-driven method for tackling numerous intricate and pressing issues capable of building a symbiotic relationship between cyber-physical and ecological systems.

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Governance structure

Since 1996, Portugal has adopted a flexible layer of R&D units for the researchers' initiative, with boundaries crossing the rigid structures of universities, schools, and departments. This model leads to a direct relationship between the R&D Unit members and funding agents, strengthening their responsibilities, involvement, and accountability and enhancing the role of R&D Units and higher education institutions. While ITI and LARSyS are research units and laboratories of IST, they are independent structures driven by the collective of researchers that compose them. Participation in ITI and LARSyS is a bottom-up process where individual researchers apply (and are subject to acceptance by their peers based on their potential and research performance).

However, this model hinders faculty career decisions, and tenure is decided at the department level, meaning that ITI and LARSyS need to be more extensive in how they can determine the recruitment and promotion of tenure-track faculty members. The exception is the hiring of faculty in the research track, which remains a responsibility of ITI and LARSyS, although relatively limited because of the reduced available structural funds to sustain a research track faculty.

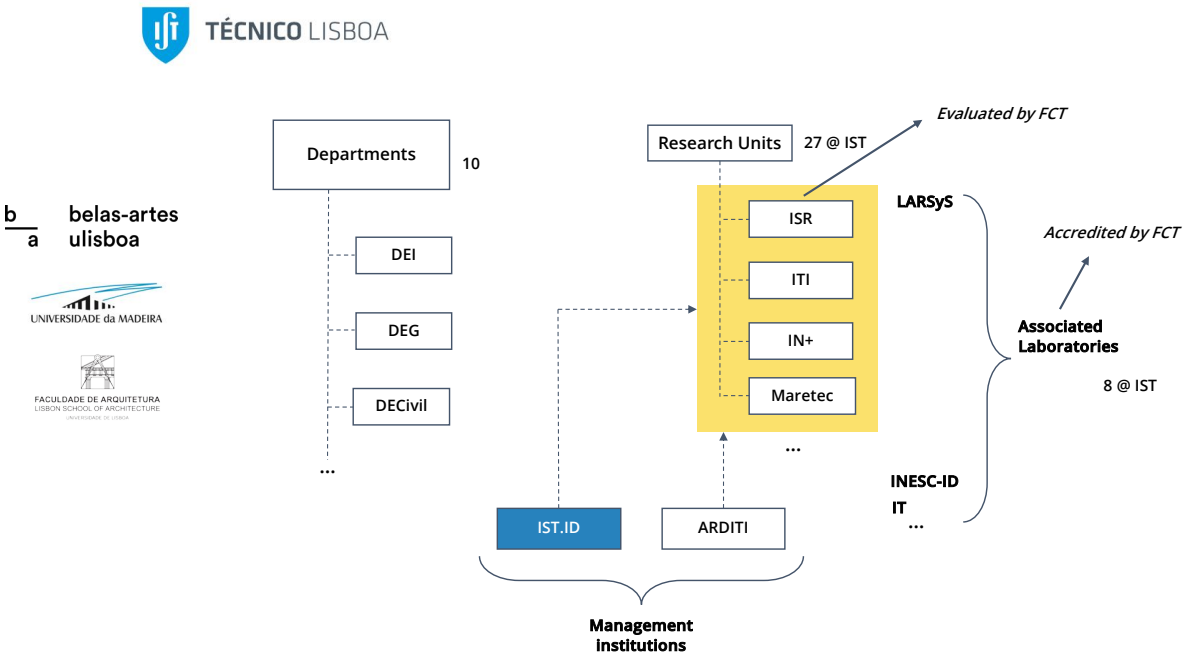


Figure 1: ITI in the overall IST and research system in Portugal

Its statutes, which IST approves, determine the organizational structure of ITI. The President of the Board is elected every two years and is responsible for managing the research unit, assisted by several Vice Presidents. The board determines the Board members' responsibilities and appoints the executive director to oversee the staff and the daily operations of ITI. The President of the Board of ITI also represents ITI at the LARSyS level and towards all the bodies of IST and FCT.

The Scientific Committee is coordinated by a VP for Scientific Affairs elected independently by all faculty members. The VP for SA coordinates the scientific committee, which makes all decisions related to scientific organization, admission and ejection of members, budget distribution, research performance, etc.

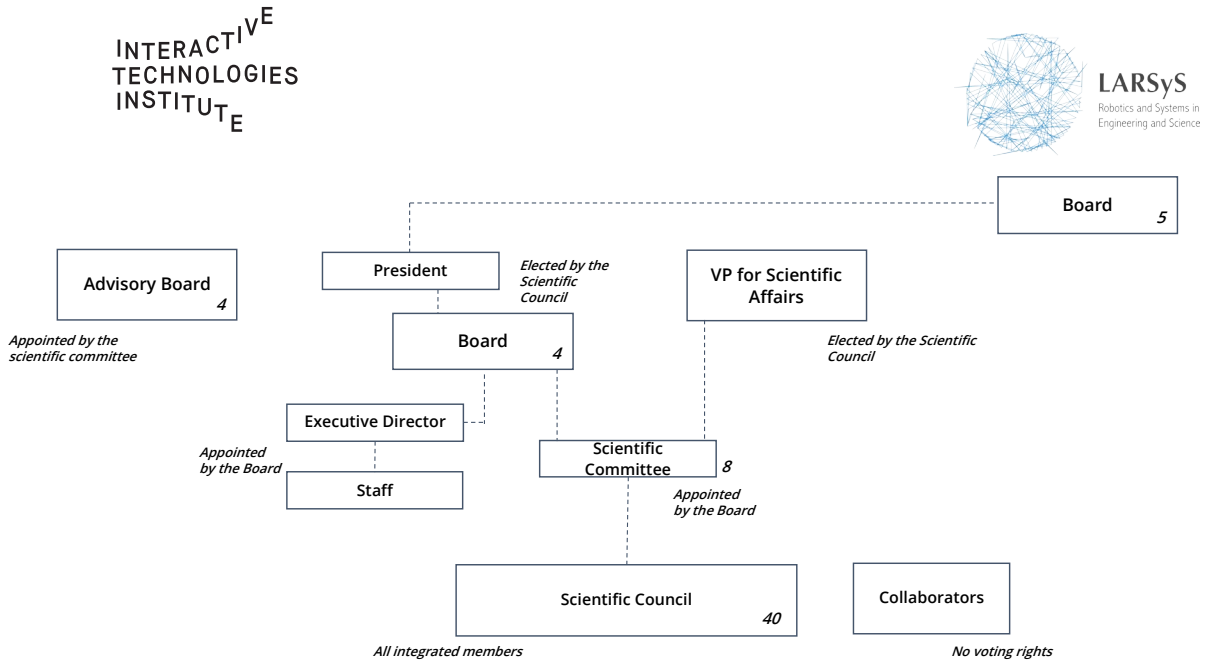


Figure 2: LARSyS/ITI Governance Model

Scientific Organization

The researchers of ITI organize themselves in four collectives by scientific affinity and through association with funded research projects. Each collective has a leader (coordinator), who is appointed to the role by the scientific committee of the institute by the institute's scientific committee to cover specific research areas of direct interest to ITI, namely, Creative technology, Computational sustainability, Inclusive Computing, and Technologies for wellbeing.

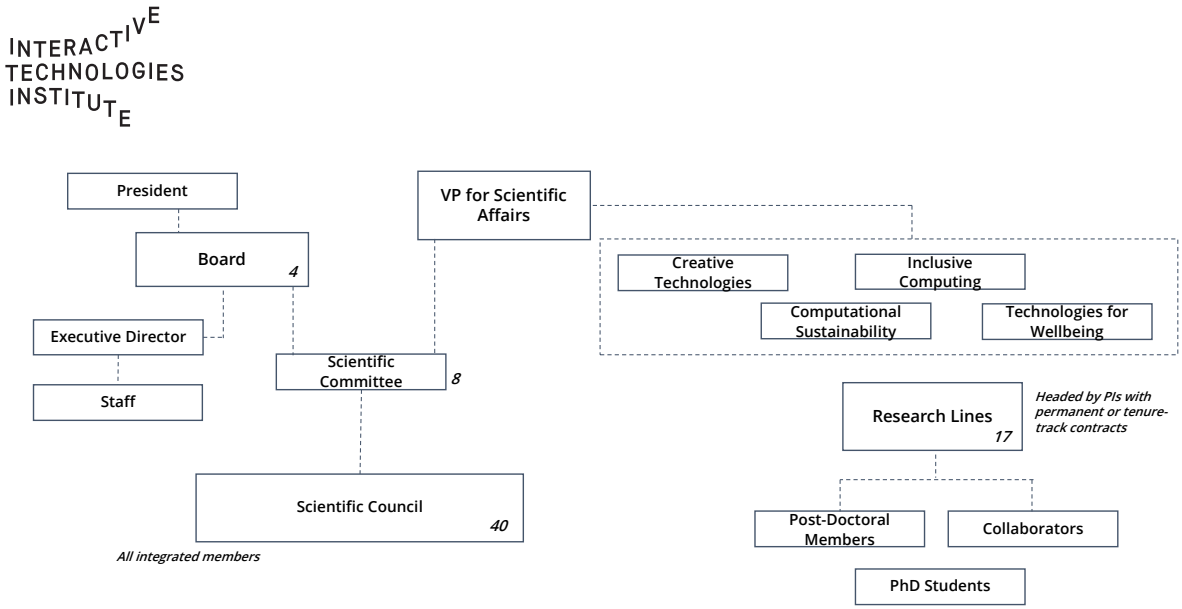


Figure 3: LARSyS/ITI New Scientific Orgnization Model

Faculty with permanent or tenure track positions integrated in ITI are considered Principal Investigators. Other PhD holder integrated members (with non-permanent positions, e.g., postdocs) are integrated in research lines. PhD holders whose main research unit is not ITI are integrated as collaborators in a research line.

Creative Technologies Collective (CTC)

Coordinator: Valentina Nisi

PIs: Mara Dionisio, Mónica Mendes, Patrícia Gouveia, Pedro Campos,

Members: Anna Unterholzner, Hildegardo Noronha, Luciana Lima, Paulo Bala, Pedro Ferreira, Sandra Olim, Terhi Marttila, Vanessa Cesário, Yanick Trindade

Collaborators: Deborah Castro, Marco Neves, Nuno António do Nascimento Correia, Pedro Miguel Soares Neves, Teresa Veiga Furtado, Cristina Maria Sylla, Sónia Matos, Adriana Mendonça

PhD Students: Alexander Kramer, Ana Carolina Padua Mendes Dias, Ana Cristina Gama Saial, Ana Cristina Veloso Luís, Beatrice Maggipinto, Beatriz Rodrigues Jardim Rino Peres, Beatriz Severes, Catarina Alexandra Barbosa Moreira Reis, Diana Ponciano Osório de Carvalho, Diogo Nuno Teixeira Freitas, Duarte Luís de Sousa, Filipe Pinheiro Tomé, Isabelle Arvers, Jéssica Gouveia Pereira Corujeira, Joana Filipa Pinho Resende Silva, Jorge Forero Rodríguez, José Rúben da Silva Freitas, Laís dos Santos Lopes, Lorena Ramos Lomba , Rafaela Martins Nunes, Rute Isabel Soares da Luz, Thaís Weiller, Tiago Miguel Montês Pereira Mindrico, Tin Shine Aung, Ana Caraban, Catarina Alexandra Santos Faria, João Pedro Farinha Nunes da Costa, Preety Baglat, Roham Torabi, Rui Xavier.

General description of the CTC

The Creative Technologies Interdisciplinary Collective (CTC) explores the intersection of technology, art, and humanities through posthuman and relational ontologies lenses, speculative fabulations, digital interactive storytelling and games, and multimedia interactive art. CTC pushes the boundaries of digital expression and societal impact by applying post-human approaches to socio-technology studies of advanced technologies and creative practices. Through this lens, CTC evolves the relationship between humans and technology by tackling themes such as identity and gender, nature as culture, and inclusion and cohesion of marginalized groups, aiming to contribute to a more inclusive and equitable technological future.

In interactive storytelling, we experiment with novel narrative structures and cutting-edge storytelling systems and interfaces to create immersive and emotionally engaging experiences that carry meaningful messages and impact global challenges such as nature preservation, inclusion, Integration, and cultural accessibility. Moreover, CTC leverages the power of digital gaming to address social, educational, and sustainability issues, creating games that entertain and contribute to novel learning techniques, green agendas, well-being, and cross-cultural exchanges. CTC art and multimedia projects combine traditional artistic methods, such as dance, choreography, and multimedia communications, with

cutting-edge digital tools, resulting in innovative artworks that challenge and create novel possibilities for contemporary performing arts, augmenting audience engagement with digital technologies. The projects stemming from these lines of research serve as a platform for experts and lay public critical engagement with pressing and complex societal matters, fostering dialogue and reflection within the community.

Achievements

CTC conducts research in interactive storytelling and gaming, from content accessed through context-aware interactions triggered by the user's location, generating extended experiences for various audiences and purposes. Impacts include i) Promoting inclusive access to various forms of cultural heritage, bringing to the forefront marginalized voices, and fostering a more holistic understanding of heritage (http://memexproject.eu, 2019-22); ii) reframing public spaces with site-specific narratives transform spaces into arenas of learning and engagement (Beanstalk, 2015-21) and introducing Location-based Augmented Reality Gadgets (LARGs) as tourism products LARGESCALE (2018-21); iii) engaging the youth through digital interventions, spanning open public spaces and museum settings, reviving interest in culture; iv) promoting locals and tourism engagement with protected biodiversity and natural heritage (http://logaculture.eu 2023-25. These interventions have driven policy and practice, providing valuable insights for policymakers and practitioners in cultural and nature preservation, social inclusion, and digital engagement.

CTC is leading the http://eGamesLab.pt agenda, establishing a new cluster in digital games in Portugal. CTC research leads to the creation of tools that generate digital twins of natural and culturally entangled landscapes to make these explorable via: i) AI-powered dynamic plots between the different characters to increase the level of entertainment; ii) automatic summarization of interactive narratives as intelligent feedback to assist authoring; and iii) User-friendly interfaces for AI-powered storytelling authoring systems. CTC explores the possibilities of storytelling based on film and media studies, which can be applied to the egaming industry. Contributions focus on defining narrative structures and the base morphology of storytelling for gaming, thus contributing to teams capable of developing scripts, narratives, and dialogues from common content base structures and toolkits where artificial agents can form their strategies and guarantee more fluid, unexpected, and varied experiences.

CTC leverages speculative design and education by collecting and exchanging existing knowledge and developing new methods through: i) the transnational SpeculativeEdu (Erasmus+ 2018-20); ii) the COST Action (https://indcor.eu/) builds a network for the interdisciplinary study of the potential interactive digital narrative as a means to addressing complexity as a societal challenge by representing, experiencing, and comprehending complex phenomena and addressing "hate speech" (https://knowhate.eu/) and "fake news"; and iii) promoting digital technologies in

performing arts and audience engagement through emergent technologies such as virtual reality, biosignal sensors, and motion capture systems (https://movingdigits.eu, 2018-20) or artificial intelligence and embodied interaction (https://modina.eu, 2023-2026).

Computational Sustainability Collective (CSC)

Coordinator: Lucas Pereira

PIs: Nuno Jardim Nunes, Filipe Quintal, Sónia Rafael

Members: Cristiano Pedroso-Roussado, Frederico Duarte, José Luís Silva, Mariana Pestana, Mary Barreto, Nicholas Toretta, Shujoy Chakraborty, Vera Fearns

Collaborators: Sabrina Scuri, André Tavares

PhD Students: Ana Marta Galvão Ferreira, Ana O Henriques, Anna My Karolina Bertmark, Anthony Faustine, Bernardo Gaeiras, Carlos Pastor Garcia, Catherine Ngirwa, Fernanda Soares da Costa, Jennifer Cunningham, Joana Maria Pereira Pestana, João Pedro Rodrigues Góis, Katerina Iglezaki, Lunodzo Mwinuka, Manuel Afonso Soares Pereira, Mariana Teixeira Pascoal Simões, Mathilde Anne Pauline Marie Gouin, Rosa Angela María Retuerto Luna, Shuhao Ma, Valentina Demarchi, Anthony Faustine, Dinarte Gonçalves Vasconcelos, Nuno Alexandre Silva Velosa, Padideh Pezeshki, Neeta M Khanuja, Ziqi Huang

General description of the CSC

The Computational Sustainability Collective (CSC) leverages computing's transformative power to catalyze a global shift towards a sustainable planet. Recognizing computing as the scale-making technology of this century, the group is dedicated to developing innovative computing solutions that not only reduce environmental footprints but actively drive change, promote ecological harmony, and foster a decarbonized future where technology and nature coexist symbiotically.

The group's research is organized around three pivotal themes: balancing environmental and socioeconomic needs, biodiversity and conservation, and future-proof energy systems. Each theme is approached through a computational lens, focusing on sustainable interaction design, novel sensing techniques, optimization, dynamical models and simulation, data and machine learning, AI technologies, crowdsourcing, and citizen science. This multidisciplinary approach highlights the crosscutting themes underpinning the group's efforts to promote sustainability. The goal is not just to mitigate the impacts of human activities on the environment but to actively contribute to a sustainable future. This involves a commitment to innovation and collaboration across disciplines such as social sciences, mathematics, computer science, and arts, leveraging the vast potential of computational methods to make significant strides in developing tools like water digital

twins, species distribution models, and algorithms for optimizing renewable energy utilization and electric mobility.

Our multidisciplinary team forged close collaborations with diverse sectors of society, such as municipalities, electric utilities, port authorities, manufacturers, and other research centres. This approach emphasizes maintaining strong connections with the social fabric to expedite the translation of research findings into practical solutions, facilitating the anticipation and resolution of real-world challenges

Achievements

The Bauhaus of the Seas (BoSS) was devised as a situated vision responding to the New European Bauhaus (NEB) challenge. The BoSS vision incorporated an understanding of the climate crisis as a global, complex hyperobject emerging from the human exceptionalism of generations schooled in the dichotomy of humans vs. nature. The BoSS project (bauhaus-seas.eu), coordinated by ITI, is one of the EU lighthouse projects of the NEB with seven pilot cities in Europe. Following a longstanding tradition of using art and interactivity to promote sustainability (net) or the recent Tidal Arts EU (2024-27). These efforts have led to recommendations for presenting meaningful interactions and climate change data or adopting the Triple Bottom Line (TBL) framework as a critical lens to understand how the pillars of sustainable development (environmental, social, and economic) play into the SHCI discourse. The research emphasizes the importance of positive, story-driven, and actionable communication to engage diverse audiences with complex climate and biodiversity topics (intertagua.eu 2019-21) or how to challenge the broadly accepted narrative of economic theory.

ITI's participation in EU sustainability projects builds on speculative design approaches REDEMA (2018-21) to re-think energy policy and consumer behavior, including testing the market adoption of smart grid technologies (from batteries to e-vehicles and pumped hydro eu 2017-21), mobility solutions (civitas.eu/projects/destinations 2016-21, AHEAD 2024-28) and direct current solutions in ports (SHIFT2DC 2023-27) using Islands as living labs. These efforts further expanded to recommendations for Western Africa and Atlantic islands ENERMAC (2017-19), contributing to maximizing the use of renewable and indigenous energy sources to help reduce energy dependence.

The future energy landscape is characterised by a shift towards decentralised power grids with a dominant presence of renewables. This transition addresses environmental concerns and promotes a more sustainable, resilient, and inclusive energy system that benefits individuals and communities. In this context, providing eco-feedback to consumers and prosumers is vital, empowering them to make informed decisions about energy usage and generation using digital technologies like non-intrusive load monitoring (NILM), smart meter data analytics or blockchain (tecnico.ulisboa.pt 2020-25), which ITI researchers have pioneered and transferred into industry (FIK - 2018-19, nexIK - 2022-23).

They provide insights into consumption patterns, detect anomalies, and optimize grid operations in real-time (ALAMO - 2024). This enables predictive maintenance, load forecasting, and the identification of opportunities for grid improvements supporting demand response programs, where consumers and prosumers can adjust their usage in response to grid conditions, enhancing grid stability..

Inclusive Computing Collective (ICC)

Coordinator: Hugo Nicolau

PIs: Filipa Correia

Members: Ana Pires, Cláudia Silva, Diogo Cabral

Collaborators: Arminda Lopes, Frederica Gonçalves, Jose Nocera, Nuno Otero, Pedro Valente, Pedro Sanches, Teresa de Almeida Joaquim, Catia Prandi, Jean Rosa

PhD Students: Ana Isabel Mendonça Rodrigues, Inês Dos Santos Silva, Jing Zhao, Patrícia Isabel Figueira da Piedade, Soraia Isabel Figueiredo Paulo, Filipa Gravato de Matos de Sousa Rocha, Katharina Buckmayer

General description of the ICC

The Inclusive Computing Collective (ICC) is dedicated to designing, building, and studying computing technologies to empower individuals and foster positive social change. Rooted in the discipline of human-computer interaction, our approach is enriched by principles from design justice, participatory research, and disability studies. We use various technologies, from mobile and wearable devices to smart objects and social robots, to create more inclusive and accessible experiences.

Our primary aim is to empower those often marginalised in traditional design paradigms, such as individuals with disabilities, by tackling significant challenges in education, health, and accessibility. We are committed to making a tangible impact by implementing our solutions in real-world settings and assessing their effectiveness through field studies. Examples include enhancing the everyday mobile interactions of visually impaired users by developing innovative accessibility tools, delving into interactive technologies to aid the physical rehabilitation of stroke survivors, and demonstrating our lab's commitment to health-related advancements.

We also pioneer the use of robotic devices to foster inclusive learning environments. We aim to support collaborative learning among students with diverse sensory abilities, making computational thinking and group work more accessible and inclusive. This vision also includes creating intelligent devices capable of sensing and reacting to unbalanced human interactions, addressing technical challenges on multiparty interactions. Our

projects, such as integrating social robots in classrooms, exemplify our dedication to creating educational spaces where all students can thrive together, regardless of their abilities. Through these endeavours, the Inclusive Computing Group aspires to address the immediate needs of underserved communities and lay the groundwork for a more inclusive future in technology and society at large.

Achievements

Novel participatory research models and digital platforms for community-led innovation. Our contributions are cross-disciplinary and posit the use of technology to empower citizens to co-create, make decisions about service provision, and make such provisions resilient. ITI's contributions include a network of digital platforms for community deliberation, and the free flow of information within, into, and out of discrete geographic communities by piloting solutions for: i) connected, inexpensive, community-owned and operated radio across Europe (GrassRoots WaveLengths, 2018-20); ii) precarization of lives and social relations due to the crisis of traditional welfare systems and growing social inequalities (EU Pie News, 2016-19) by making visible and supporting practices of collective and individual empowerment (e.g. ethical purchasing, free software, co-housing, fab labs, coworking, time banking, social cooperatives, ethical finance, community-gyms); iii) improving the levels of scientific and environmental literacies amongst children (FCT Field Guide, 2018-21); iv) implementing learning activities within the theme of climate change and encourage girls to enroll in STEM (EU Science4Girls 2020-23); v) leading to the recent EU DCitizens (2023-25) to foster Digital Civics research and innovation in Lisbon.

New paradigm to design Assistive Technologies that leverage multisensory interaction. ICC looks at accessibility as a foundation of inclusion. By breaking from traditional research on accessibility that focuses on the individual with disabilities, we consider the multitude of abilities in the social context - mixed-ability design. We have contributed with novel multisensory devices that feature texture-changing capabilities along sounds, smell, and visuals. These multisensory affordances allow the creation of shared experiences between people with and without disabilities. These innovations and findings presented in HRI/CHI award-winning papers, one EU innovation award, and one research project (FCT DCLGP 2023-25) pave the way for novel inclusive technologies to support mixed-ability groups.

New models of the social cues of robotic collaborators for inclusive interactions. In 5 Q1 publications, ICC contributed to the state-of-the-art robotic collaborators that foster trust, inclusion, and cohesive alliances with humans, such as new computational heuristics for robotic gaze behaviors or explainable AI models. Additionally, in cross-cultural empirical studies, we have scrutinized how robotic teammates displaying group-based emotions are perceived, shedding light on nuances in cultural interpretations of this robotic behavior. Lastly, a systematic literature review contributed to understanding games as a framework

to explore and expand human-robot collaborations (PRR eGamesLab 2022-24). These contributions collectively propel the evolution of social robots as human collaborators, having a proactive role in shaping inclusive environments.

Technologies for Wellbeing Collective (TWC)

Coordinator: Élvio Gouveia

PIs: Augusto Esteves, Bruna Gouveia, Daniel Simões Lopes, Fernando Morgado-Dias

Members: Cíntia França, Fábio Mendonça, Ivo Roupa, Sheikh Mostafa

Collaborators: Elisângela Vilar, Francisco dos Santos Rebelo, Antonio G Ravelo García, Paulo Noriega, Seyed Mohsen Mirmotahari

PhD Students: Adrian Javier Leon Valencia, Antonieta Tinoco, Eduardo Câmara Gomes, Honorato Sousa, João Francisco Pestana Martins, Lina Cecília da Silva Castanho, Noha Mokhtar, Gonçalo Castanha, Ankit Gupta, Décio Damasceno Mendonça Alves, Rafaela Timóteo

General description of the ICC

The Technologies for Wellbeing Collective (TWC) is dedicated to enhancing human health and performance through the innovative application of technology. Our research spans promoting physical activity and mental well-being, improving sports performance, advancing clinical practices and surgical procedures, and medical education and training with Artificial Intelligence (AI), Augmented Reality (AR), and Virtual Reality (VR) technologies.

In physical activity and mental well-being, our group develops technologies designed to encourage healthier lifestyles and improve mental health outcomes. This includes wearable devices that track physical activity, apps that deliver personalized fitness programs, and digital platforms that provide mental health support. Our work in sports performance focuses on leveraging technology to enhance athletic training and competition. By analyzing data from wearable sensors and video analytics, we provide athletes and coaches with insights into performance, risk of injury, and recovery strategies. This data-driven approach allows for highly personalized training programs and real-time performance optimization. In the clinical and surgical domains, we are pioneering AI and AR/VR technologies to transform healthcare practices. AI algorithms assist in diagnosing conditions more accurately and efficiently. At the same time, AR and VR are used for surgical interventions, medical education, and training, providing immersive experiences that can facilitate healthcare outcomes and engage stakeholders.

Our interdisciplinary team collaborates closely with healthcare professionals, athletes, coaches, clinicians, surgeons, medical instructors, and patients to ensure that our technologies meet real-world needs and are grounded in scientific evidence. Through this approach, the group aims to create impactful solutions that improve physical and mental health, enhance athletic performance, and innovate medical practices for a healthier, more active society.

Achievements

Integrating Artificial Intelligence (AI) and eXtended Reality (XR) in healthcare and medical settings promises to revolutionize patient care, diagnosis accuracy, surgical outcomes, therapeutic interventions, palliative care, health literacy, medical education, and training.

ITI research is paving the way for a new era of medical contributions in breast care through interactive technologies, such as intelligent agents that assist breast cancer diagnosis or AR headsets that empower surgeons with "x-ray vision" to perform reconstructive breast surgery. In particular, ITI's contributions in this domain consist of (i) the development of AI agents for breast cancer screening, which leads to enhanced diagnostic accuracy, quicker diagnosis with reduced error rates and overall clinical workflow improvement, as well as (ii) intra-operative AR interface that effectively speeds up deep inferior epigastric perforator flap procedures, assisting the surgeon to remove a section of abdominal skin and fat, while preserving the associated blood vessels. The former contribution has been patented (https://patents.google.com/patent/WO2022071818A1), leading to the creation of a startup dedicated to AI agents for breast cancer screening: BreastScreening-AI (https://breastscreeningai.github.io/). The latter topic is aligned with the PRR project MetaBreast - Metaverse for Breast Cancer Surgery led by Fundação Champalimaud.

Enhancing athletic performance through interactive technologies has been a core research area in ITI. The main contribution to this regard is the implementation of the Marítimo Training Lab (2020-2022) that is affiliated with Marítimo da Madeira, Futebol SAD - a professional football team. Besides offering high-performance training assistance, this lab is also a hub for research and innovation where AI, VR, wearable sensors and video analytics are employed to feed athletes and coaches with relevant data to improve athlete performance in real-time, predict risk of injury, devise recovery strategies and establish highly personalised training programs.

Several projects have contributed to a longstanding impact on wellbeing technologies, focusing on active aging and rehabilitation. The SUAVE project (2018-19) focused on active aging through persuasive technology design and evaluation. Concurrently, the FeedBot initiative (2018-21) developed a symbiotic autonomous robot for meal assistance, aiding motion-impaired individuals. Projects like ETC (2020-22) and Sleep Revolution (2022-24) introduced wearable technologies to monitor health parameters (including sleep apnea) comprehensively. NEUROAUGVRStart (2018-21) broke new ground in stroke

neurorehabilitation using virtual reality and EEG-neurofeedback. The MACBIOIDI project (2017-20) further catalyzed the development, transfer, and global commercialization of such innovations in the Macaronesian region.

Facts and Figures

Students

*Table 1: ITI's PhD, Master and Graduate students' evolution 2020-2024**

Students	2020	2021	2022	2023	2024*
PhD Graduated	12	4	9	6	4
PhD Ongoing	63	70	84	96	100
Master Graduates	47	67	69	51	21

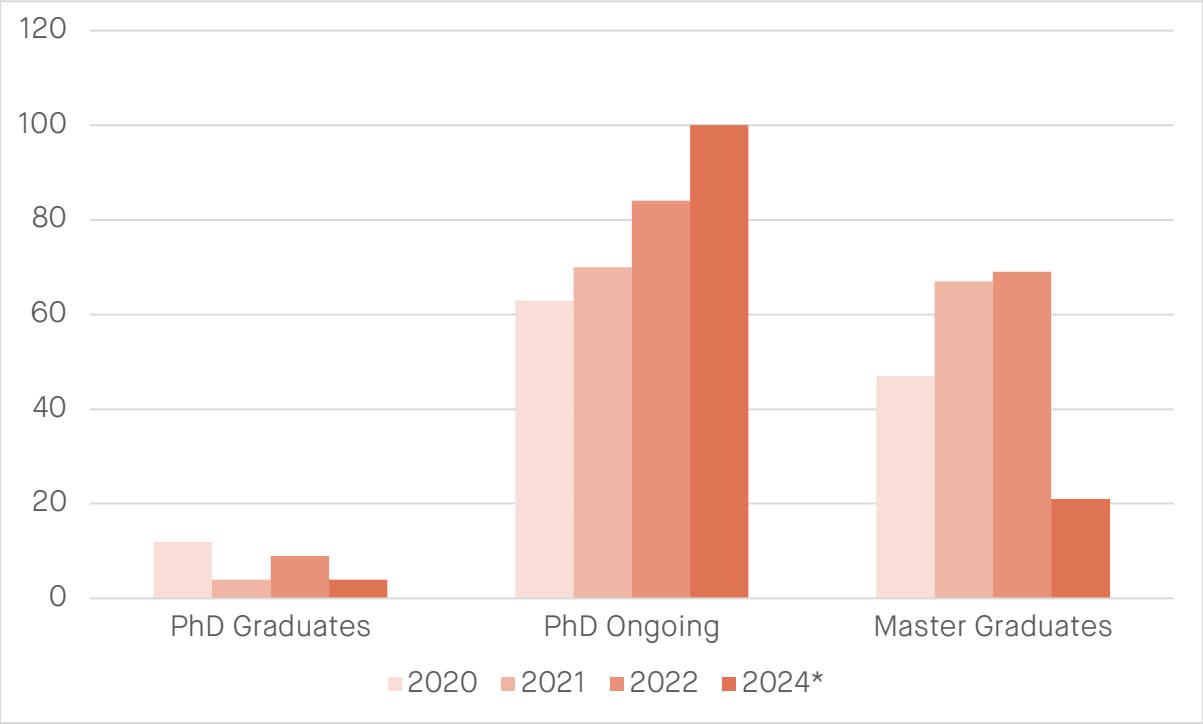


*Figure 3: ITI's PHD, Master and Graduate students' evolution 2020-2024**

Publications

Table 2: ITI's publications per classification evolution 2020-2023

Publications per Classification	2020	2021	2022	2023	Total
A*	2	2	12	8	24
Q1	33	27	72	41	173
A		19	4	14	37
Q2	19	27	20	28	94
Other	81	84	106	69	340
Grand Total	**135**	**159**	**214**	**160**	**668**

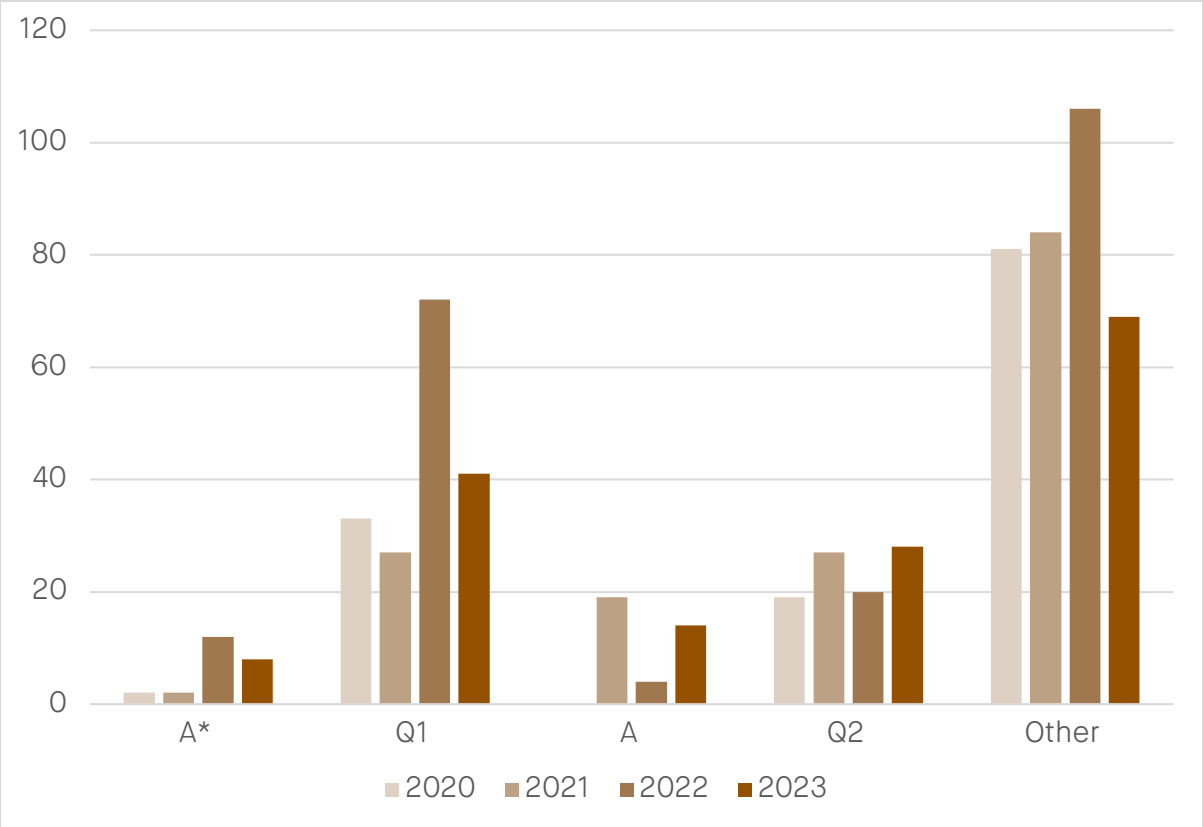


Figure 5: ITI's publications per classification evolution 2020-2022

Researchers and Faculty

*Table 4: ITI's Research Faculty and Faculty numbers evolution 2020-2024**

Researchers and Faculty	2020	2021	2022	2023	2024
Faculty	21	18	21	19	21
Researchers	9	11	8	8	8
Postdocs	5	5	1	10	11
Total	**35**	**34**	**30**	**37**	**40**

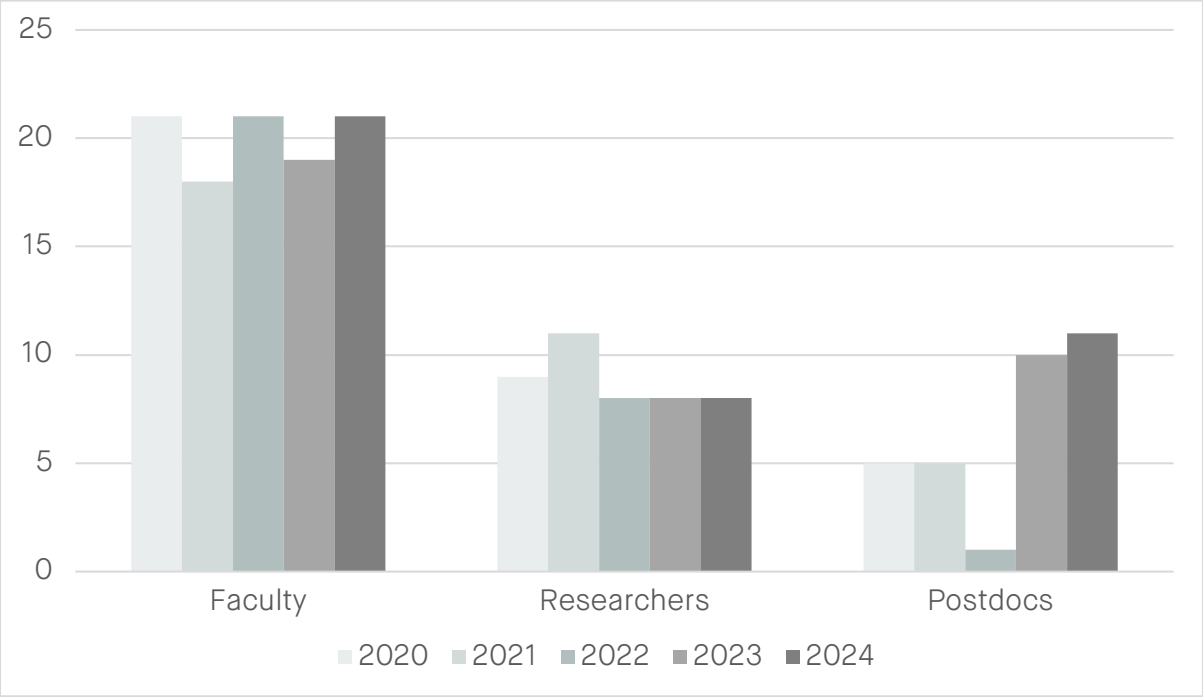


Figure 6: ITI's Research Faculty and Faculty numbers evolution 2020-2024*

Diversity

*Table 5: ITI's Staff Diversity by Gender and Nationality**

Researchers and Faculty	Male	Female	Perc. Fem.	# National.	Perc. Foreign
Integrated	18	22	45%	9	23%
Collaborator	12	11	48%	2	17%
Staff	2	4	66%	1	0%
PhD Student	44	30	59%	17	42%
Total	**66**	**77**	**54%**	**22**	**33%**

Funding

*Table 5: ITI's Funding per source evolution 2020-2024**

Funding Source	2020	2021	2022	2023	2024*
National Funding	**756**	**674**	**1 042**	**1 152**	**951**
FCT (Pluriannual)	215	215	215	215	215
FCT (Projects)	375	221	237	129	82
FCT (Researchers)	114	97	105	323	333
Other	52	141	485	485	322
International Funding	**585**	**500**	**500**	**1 221**	**1 393**
Horizon	585	500	500	1 221	1 393
Other					
Industry	**371**	**482**	**1 671**	**3 332**	**2 998**
National	371	482	1 596	3 057	2 723
Sponsorship			75	275	275
Total	**1 711**	**1 655**	**3 213**	**5 705**	**5 342**

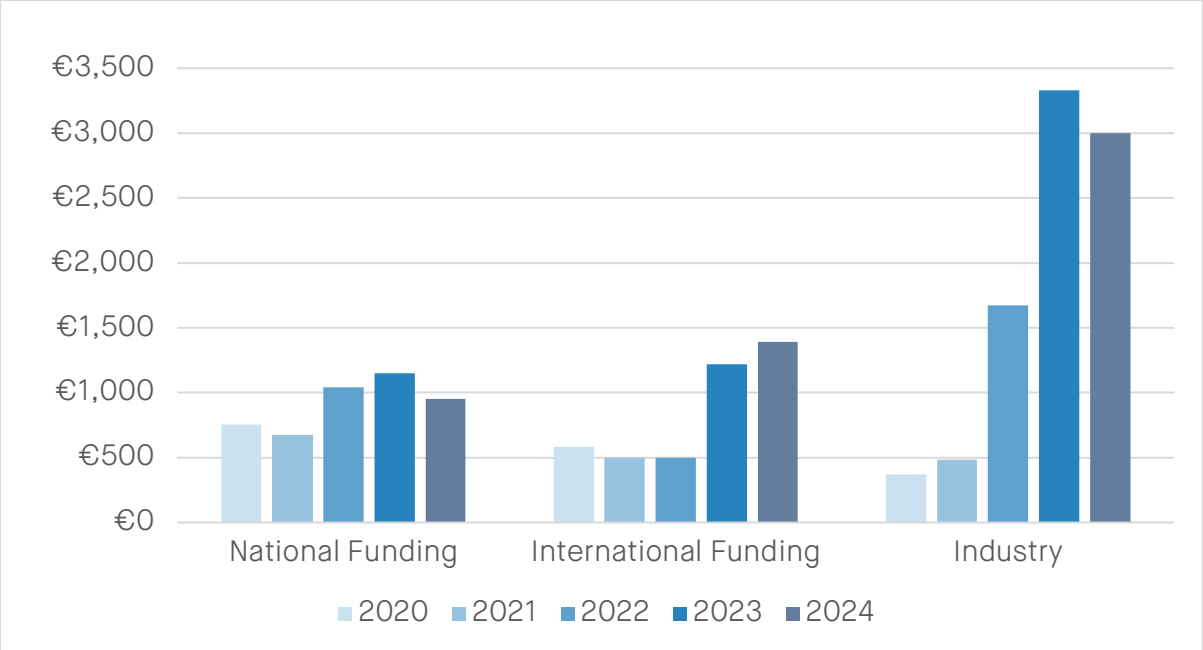


*Figure 7: ITI's Funding per source evolution 2020-2023**

Advisory Board Recommendations 2023

Recommendations and follow-up actions

Following last year's AB meeting, the advisory board advised on the following actions:

1. Organizational structure with a shared mission:

- Establish an organizational structure that allows ITI members (Senior and junior researchers and students) to channel their diverse activities and competencies.
    - Enabled guidance and mentorship. Group researchers under experienced and funded research leaders: Principal Investigators. The PI will be able to provide support, inspire, and mentor members of their RL.
    - Avoiding silo research through Cross Research lines themes. Define a small number (5 - 6) of "topical clusters" that allow people to collaborate closely on larger projects.

After receiving, reading, and discussing the AB report, the Scientific Committee gathered for 2 working days off-site, at the University of Madeira facilities, to discuss how to implement the AB suggestions best. The outcome of the retreat was the revision of the ITI ethics guidelines, admission and collaboration criteria, ITI budget and research support tools, and Internal structure. The results are visible in creating a set (17) research lines (RL) led by funded and senior Principal Investigators. The detailed outcomes of the meetings are available in Appendix 1. Subsequently, following FCT's evaluation structure, the RL was organized into thematic groups Collectives (described later in this document). The four collectives capture the breadth of the ITI vision and allow the Research Lines to cluster, dialogue, and collaborate, counteracting the siloing of Research Lines. Centralizing the researchers and areas of interest enables more cooperation and knowledge exchange between the different collectives.

2. A mission-driven brand identity with a grand vision.

- The AB recommended that ITI establish a "brand" and an "identity for external communication" to put ITI on the map as a lighthouse of interdisciplinary research and excellence in the scientific community, for funding organizations, and for sponsors. The brand and identity would help ITI obtain contracts from the industry, with ITI adopting a more mission-driven approach focusing on a grand vision. This process should be explored in a dedicated workshop moderated by external experts.
- A hub for global talent. Finally, the AB recommends continuing to work on a Unique Selling Proposition (USP) for ITI and highlighting the unique interdisciplinary research combination at ITI. ITI has the potential to generate societal impacts well

above the average academic unit. This includes motivating more international talent to join ITI in Lisbon. One option would be to consider organizing satellites in weeklong sprints. Another route is to engage famous artists using ITI technologies in their performances. With projects that encourage diverse research topics, more researchers from Africa and South America ought to be recruited.

To address these suggestions, we have:

- Contracted an external advisor specialized in communication. However, this workshop didn't happen due to a lack of agenda coordination and availability. We are striving to make it happen in early 2025.
- Continued to strive to attract international talent as students and research faculty, with several international students and junior researchers from Turkey, Italy, and China joining our research and Postgrad programs, and junior faculty from Sweden and UK applying as faculty at IST and researchers at ITI

3. Scaling up project development through interdisciplinary knowledge exchange.

- AB recommended encouraging the formation of small interdisciplinary proposal writing teams that coordinate themselves and focus on significant themes that correspond to the topical clusters mentioned above (see point 1). This will drive knowledge exchange and, through collisions between knowledge areas, drive new research directions for project proposals. It helps to incentivize personal and project development through these mission-driven exchanges.

To address this concern, the admin team created a pre-award support team to help the researchers and has since hosted sessions with the IST-ID central office responsible for pre-award. Several interdisciplinary projects have been awarded since (EU-funded: Innovation Action Tidal Arts; and Erasmus +: Sustainable Interaction Design)

4. A new Lab Culture.
   - To increase collaboration and avoid working in silos, the AB recommends fostering a lab culture, motivating people to be present at ITI in the new space in Beato. People should engage in informal communication and exchange to trigger and create new ideas and collaborations. Additional activities should be pursued to develop a feeling of belonging. It includes weekly and monthly meetings to establish a lab culture and incentives for collaboratively producing artifacts, etc., on-site. This implies the need for a prototyping lab and the corresponding equipment. Organizing social events (e.g., artists and DJs can be invited to present and perform) and joint lunches are additional support measures. This may also lead to known artists using ITI tech in performance and helping the brand to establish itself in public perception.
   - A Lab for Interactive Technologies Collaborators. With her research management team, the new executive director should address the issues raised by the junior

faculty and Ph.D. students in the "speak freely" meetings, which the AB communicated to the team. This includes improving internal communication, welcome, and onboarding activities. There is a solid relationship to the previous recommendations of creating a feeling of belonging in a motivating environment at ITI. In this context, it might be helpful to explore changing the title assigned to somebody who already has a degree and is working for ITI. The title (Ph.D.) "Student" might suggest a misleading context frame. An alternative might be "scientific collaborator" (as it is used, e.g., at research institutes in Germany) or an equivalent for an interdisciplinary environment, emphasizing a much stronger relationship with ITI and less linked to being a student at the university while still working for a Ph.D.

To address these suggestions, ITI's organized the first Lisbon ITI all-hands meeting in early summer 2024, with outcomes in defining social and inclusion bottom-up committees, made by students and junior researchers. The management has defined a budget of €1,000 per month for the community to develop activities. During an All-Hands meeting, members' mental well-being and support were discussed, and members were made aware of IST and U of Lisbon well-being instruments. Moreover, free ITI student-led yoga and Pilates classes are offered to all ITI members weekly in the communal area of the factory rooftop. Regular monthly activities such as the ITI Talks are still being held and provide an opportunity for socialization as lunch is offered.

5. Additional Lab space via a combination of public and private funding.
   - The feeling of belonging and the Lab culture is also related to the properties of the existing Lab space. Since the space is or will soon not be sufficient for all the people mentioned (200) belonging to ITI, efforts should be made to obtain additional lab space in the adjacent area, which was shown to one of the AB members. The AB acknowledges that the rental cost for space in Beato is very high and that additional funding or sponsorship, e.g., by the municipality of Lisbon is needed. Another way to pay these costs could be to attract further private and industrial funding in the context of the AB recommendations.

   To address this concern, ITI's management actively talks with the municipality about using a newly renovated building in the Hub's complex. Simultaneously, IST-ID has submitted a proposal for a €13 million renovation of a 3,200 square meter building currently abandoned that will host several of IST-ID's research projects and explore opportunities for use by private companies and investors.

6. A Futures Lab for Industry.
   - The AB recommends exploring more private / industry funding sources by exploiting its USP (unique selling proposition), so that existing EU and FCT based funding is augmented. ITI could present itself as an "industrial futures lab" and engage in more industrial collaboration. The partly existing startup mentality and

entrepreneurial spirit can be combined with a strong brand and identity based on a grand vision (point 2). These channels should be reinforced and private investment in R&I should be sought. This may help shift the focus away from bureaucratic and administrative tasks and mitigate various inconsistencies in Portuguese public funding rules. For example, this type of funding might be used to obtain private match funding to cover the shortfall in tuition fees for students who do not have an FCT scholarship (eGames project) and are made to pay 3 months of their salary for tuition fees.

To address this concern, ITI has successfully implemented a new executive education program, in partnership with CMU, NOVA FCT, Universdade de Lisboa, and FBAUL, that resulted from securing a €200,000 yearly sponsorship with Santander Foundation.

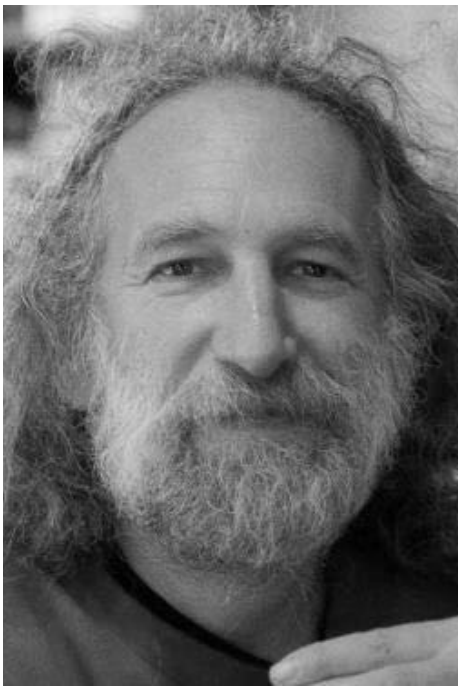
Governance team

Advisory Board

Kristina Höök

Kristina Höök is a Swedish computer scientist specialising in human–computer interaction and known for her work in somaesthetics. She is a professor in interaction design at the KTH Royal Institute of Technology. Höök earned a bachelor's degree in 1987 from Uppsala University, completed a Ph.D. in 1996 at Stockholm University, and earned a habilitation in 2002 from Stockholm University. She has been a researcher for the Research Institutes of Sweden (RISE) since 1990 and became a professor at Stockholm University in 2003. She moved to KTH in 2012. Her research interests include affective interaction, somaesthetic design, Internet of things and anything that makes life with technology more meaningful, enjoyable, creative, and aesthetically appealing.

Mark D. Gross



Mark D Gross is a professor of computer science and director of the ATLAS Institute at the University of Colorado, Boulder, an interdisciplinary institute for radical creativity and invention with academic programs in the College of Engineering and Applied Science. Gross has served on the faculties of CMU and the U. of Washington, Seattle and worked at Atari Cambridge Research, Logo Computer Systems Incorporated and Kurzweil Computer Products. He co-founded Modular Robotics Incorporated and Blank Slate Systems LLC, and is a partner in Momotone, Inc. Gross' research interests include design methods, modular robotics, computationally enhanced construction toys and crafts, design software for digital fabrication, and the internet of things. He earned BS and PhD degrees from the Massachusetts Institute of Technology.

Michela Magas

Michela Magas bridges design and technology, academic research and industry. She is Chair of the Industry Commons Foundation, advisor to the European Commission and the G7 leaders, Member of President von der Leyen's High Level Round Table for the New European Bauhaus, and member of the Advisory Board of CERN IdeaSquare (ISAB-G). Michela is Founder of MTF Labs that has over the past 10 years been conducting technology experiments with its global community of 8000 contributors from the arts and sciences. In 2017 she was awarded European Woman Innovator of the Year.

Norbert Streitz

Dr. Norbert Streitz (Ph.D. in physics, Ph.D. in cognitive science) is a Senior Scientist and Strategic Advisor with more than 35 years of experience in ICT. Founder and Scientific Director of the Smart Future Initiative, launched in 2009. Before, Norbert held positions as Deputy Director and Division Manager at the Fraunhofer Institute IPSI in Darmstadt, Germany, for more than 20 years and was a Lecturer at the Computer Science Department at Technical University Darmstadt. This was preceded by being an Assistant Professor at the Technical University Aachen (RWTH). Norbert was a post-doc at the University of California, Berkeley, a visiting scholar at Xerox PARC, Palo Alto, and at the Intelligent Systems Lab, MITI, Tsukuba Science City, Japan. His projects, publications, talks, and keynotes cover a wide range of areas: Cognitive Science, Human-Computer Interaction, Experience Design, Hypertext/Hypermedia, CSCW, Ubiquitous Computing, Ambient Intelligence, Human-Centred AI, Privacy, Industry 4.0, Automated Driving, Hybrid Smart Cities, Smart Airports, Smart Islands. Norbert was a PI of many projects funded by the European

Commission as well as industry. Norbert is an elected member of the ACM CHI Academy.

Vicki Hanson

Vicki Hanson is an American computer scientist noted for her research on human-computer interaction and accessibility and for her leadership in broadening participation in computing. She was named the Chief Executive Officer of the Association for Computing Machinery (ACM) in 2018, having served as its President from 2016 to 2018. Hanson was elected a member of the National Academy of Engineering in 2020 for contributions to the design of accessible systems and for leadership in the computer science and engineering community. Dr. Hanson was a Distinguished Professor at the Rochester Institute of Technology within the HCI and Accessibility research groups. She was also Professor and Chair of Inclusive Technologies at the University of Dundee where she led multiple efforts related to inclusion of older adults and individuals with disabilities.

Board of Directors

Nuno Jardim Nunes

Nuno Nunes is a Full professor at Tecnico U. Lisbon and the President of the Interaction Technologies Institute (ITI) a research unit of the LARSYS Associated Laboratory. He's also co-Director of the Carnegie Mellon International partnership (www.cmuportugal.org) and affiliated faculty at the HCII at CMU. Nuno's research interests lie in applying models to software, system, and service design for environmental sustainability and participatory culture. Nuno is a strong advocate of the role of design in engineering. Nuno organised several key conferences of the ACM SIGCHI (www.sigchi,org) and published more than 170 peer-reviewed papers in international journals and conferences in software engineering, HCI and service science. He was PI and co-PI of several research projects totalling more than 25M€ from European to national and industry-funded.

Daniel Simões Lopes

Daniel Simões Lopes is a tenured Assistant Professor of the Computer Science & Engineering Department at Técnico Lisboa and Integrated Researcher at ITI/LARSyS. He is also a Research Collaborator at INESC ID. He holds a degree in biomedical engineering from the University of Lisbon and graduated in computational engineering under the framework of the UT Austin Portugal Program. At the educational level, he teaches Computer Graphics (undergraduate) and Virtual Reality (graduate) courses. Currently he co-supervises 5 PhD students and has graduated 35+ master students. At the Interactive Technologies Institute, he directs the Lab of xReality, which investigates novel XR interfaces with applications in 3D content creation and medical scenarios, as well as improved Computer Graphics techniques to better interact in the Metaverse. He authored 50+ scientific papers at top venues. He also participated in 9 national research projects, being the principal

investigator in 2 of them. He is member of the ACM. His main research interests are collision detection, motion processing, extended reality, and medical interfaces.

Élvio Rúbio Gouveia

Élvio Rúbio Gouveia (ERG) has a degree in Physical Education, a master's in physical education, and a Ph.D. in Sport Sciences, all from the University of Madeira. Currently, ERG is an Assistant Professor of the Department of Physical Education and Sport at the University of Madeira and a Member of Interactive Technologies Institute, a research unit from the Laboratory of Robotics and Engineering Systems. ERG also collaborates with the Centre for the Interdisciplinary Study of Gerontology and Vulnerability, University of Geneva, Switzerland. ERG has been working on the development and evaluation of strategies to promote physical activity, fitness, and quality of life in children, adults, and older adults. Focusing on the physiological assessment of human fitness and the promotion of healthy ageing, his research is grounded on a multidisciplinary approach to several issues that affect health fitness. In the last 5 years, ERG has participated in five financed research projects. He has several papers published in Q1 and Q2 scientific journals, such as Quality of Life Research, Journal of Environmental Research and Public Health, Journal of Public Health, Achieves of Gerontology and Geriatrics, Journal of Aging and Physical Activity, Dementia and Geriatric Cognitive Disorders and Medicine and Science in Sports and Exercise.

Hugo Nicolau

Hugo is an Associate Professor in the Computer Science and Engineering Department (DEI) of Instituto Superior Técnico, University of Lisbon in Portugal. He's also a researcher and Vice-President at the Interactive Technologies Institute / LARSyS. His research interests include human-computer interaction with a special focus on technologies that promote and support the inclusion of people with disabilities in society. Hugo's goals comprise creating meaningful technologies that empower people to address high-impact problems in areas such as education, health, and social cohesion. His research methods extend mostly from the discipline of human-computer interaction and are informed by perspectives in design justice, psychology, sociology, and disability studies.

Vice-President for Scientific Affairs

Valentina Nisi

Valentina Nisi is a Full Professor of Design Thinking at Técnico - U. Lisbon, where she teaches and researches Digital Interactive Design, Art, and Media. She holds degrees in Fine Arts (BA), Multimedia (MsC), and (Ph.D.) Computer Science from Turin Fine art academy and Trinity College Dublin. She worked for four years at MIT MediaLabEurope, investigating wireless mobile technologies' potential in cinematic non-linear narratives. Her research interests are designing and producing digitally mediated experiences that merge architecture, environment, and landscape with multimedia and narrative elements. She integrates sustainability concerns with digital storytelling and gaming, impacting social issues such as marginalized communities' nature-culture, post-Anthropocene heritage, and tourism

Executive Director

Raquel Yam

Raquel is a graduate of NOVA's School of Business and Economics. Throughout her career, she has worked in management in digital media and technology companies in Europe and the US, such as Viacom and Barnes & Noble. Before joining the Interactive Technologies Institute, she led NOVA's Institute of Art and Technology implementation efforts as Executive Director.

As Executive Director at the Interactive Technologies Institute, Raquel is responsible for financial and team management, general organization, partnerships and fundraising, space management, community support, and engagement.

Research Support Team

Daniel da Costa Ribeiro
Communication Manager

Dina Dionísio
Project Manager

Luísa Metelo Seixas
Project Manager

Susana Nóbrega
Project Manager

Research Team

Principal Investigators

Augusto Esteves

IST-UL

Augusto Esteves is an Assistant Professor at Instituto Superior Técnico, where he lectures and supervises projects on Human-Computer Interaction (HCI) and eXtended-Reality (XR). Augusto holds a PhD in Human-Computer Interaction from the University of Madeira.

Bruna Gouveia

SRS

Bruna Raquel Gouveia is an Adjunct Professor at the Saint Joseph of Cluny Higher School of Nursing, a researcher at ITI – LARSyS and CIGEV - Geneva University, and a full European Academy of Nursing Sciences member. Her research has focused on studying human development and ageing and the evaluation of complex interventions in rehabilitation and health. Currently, BRG is working in epidemiological research and developing and using innovative technologies for health.

Daniel Lopes

IST-UL

Daniel Simões Lopes is a tenured Assistant Professor of the Computer Science & Engineering Department at Instituto Superior Técnico (IST) and a Research Collaborator at INESC ID. He holds a degree in Biomedical Engineering from the University of Lisbon and graduated in computational engineering under the framework of the UT Austin Portugal Program.

Élvio Rúbio Gouveia

UMa

Élvio Rúbio Gouveia holds a PhD in Sport Sciences from the University of Madeira. Currently, he is an Assistant Professor at the Department of Physical Education and Sport at the University of Madeira and collaborates with the Centre for the Interdisciplinary Study of Gerontology and Vulnerability, University of Geneva, Switzerland.

Filipa Correia

IST-UL

Filipa Correia received a PhD in Computer Science from the University of Lisbon, Portugal, in 2021. Filipa is currently an assistant researcher at the Interactive Technologies Institute in the field of Human-Robot Interaction.

Filipe Quintal

UMa

Filipe Quintal is a CS Engineer and adjunct lecturer at the University of Madeira, the same university where he completed his Ph.D. "Exploring the dimensions of eco-feedback in the wild". Filipe is also a post-doctoral researcher at the Interactive Technologies Institute.

Hugo Nicolau

IST-UL

Hugo is an Assistant Professor in the Computer Science and Engineering Department of Instituto Superior Técnico. He's also a researcher and Vice-President at the Interactive Technologies Institute. He completed his PhD degree in Computer Science at Instituto Superior Técnico.

José Luis Silva

ISCTE

José Luís Silva holds a PhD in Computer Science from the Portuguese MAP-i Consortium and performed a postdoc at the Interactive Critical Systems (ICS) team, the University of Toulouse (France). He is currently an Assistant Professor at Lisbon University Institute (ISCTE-IUL).

Lucas Pereira

IST-UL

Lucas Pereira received his PhD in Computer Science from the University of Madeira, Portugal, in 2016. Since then, he has been at the Interactive Technologies Institute, leading the Further Energy and Environment Research Laboratory

(FEELab). Since 2019 he has been an Assistant Researcher at Instituto Superior Técnico.

Mara Dionísio
UMa 🇵🇹

Mara Dionisio is an Assistant Professor at the University of Madeira and is currently teaching courses on the Masters of Informatics Engineering and Interactive Media Design. She graduated with her PhD in Digital Media at the Faculty of Science and Technology, New University of Lisbon (FCT-UNL).

Mónica Mendes
FBA-UL 🇵🇹

Mónica Mendes is a digital media artist, designer and assistant professor at the Multimedia Art Department, Faculty of Fine Arts of the University of Lisbon. She is also a researcher at the Interactive Technologies Institute, a collaborator at CIEBA – Centro de Investigação e de Estudos em Belas-Artes, and a founding member of AZ Labs hackerspace altLab.

Morgado Dias
UMa 🇵🇹

Fernando Morgado-Dias received his PhD from the University of Aveiro, Portugal, in 2005 and is currently an Associated Professor with Habilitation at the University of Madeira and a Researcher at the Interactive Technologies Institute.

Nuno Nunes
IST-UL 🇵🇹

Nuno Jardim Nunes is a Full professor at Instituto Superior Técnico and the President and founder of the Interactive Technologies Institute. Nuno is the co-director of the Carnegie Mellon International Partnership and adjunct faculty at the Human-Computer Interaction Institute at Carnegie Mellon University.

Patrícia Gouveia

FBA-UL

Patrícia Gouveia is an artist, designer, scholar, and curator with over twenty years of research experience in arts, design, gaming, and interaction. She is an Associate Professor at the Faculty of Fine Arts, University of Lisbon, and a researcher at Interactive Technologies Institute.

Pedro Campos

UMa

Pedro Filipe Campos is an Associate Professor with Habilitation in the Computer Engineering Department of the Faculty of Exact Sciences and Engineering, University of Madeira. He is currently a Vice President of the Interactive Technologies Institute and leading the eGames Lab Agenda.

Sónia Rafael

FBA-UL

Sónia Rafael holds a PhD in Communication Design from the Faculty of Fine Arts of the University of Lisbon (FBA-ULisboa). She currently serves as an Assistant Professor in Communication Design at FBA-ULisboa and collaborates with the Faculty of Architecture of the University of Lisbon (FA-ULisboa) in the field of Interaction Design.

Valentina Nisi

IST-UL

Valentina Nisi is a tenured Associate Professor in Design Thinking at Instituto Superior Técnico, Adjunct Faculty at the HCI Institute Carnegie Mellon University (USA) and founding researcher at the Interactive Technologies Institute (ITI LARSyS).

PostDoctoral Members

Ana Pires
IST-UL 🇵🇹

Ana Pires is a cognitive psychologist with experience in Human-Computer Interaction (HCI). She holds a PhD in Psychology from the Universitat Autónoma de Barcelona (Spain). Ana is a Research Fellow at the Interactive Technologies Institute and Co-PI of the "Interaction and Perception" research line at the Centre for Fundamental Research in Psychology from the Universidad de La República (Uruguay).

Anna Unterholzner
IST-UL 🇦🇹

Anna Rebecca Unterholzner is an artist, researcher and lecturer. She holds a Bachelor's degree (BSc) in Economic and Social Sciences from the WU Vienna, Austria, a Master's degree (MSc) in Philosophy from the University of Luxembourg and a Doctorate (Ph.D.) in Multimedia Arts from the Faculty of Fine Arts of the University of Lisbon, Portugal. She is currently a post-doctoral researcher at the eGames Lab and the Interactive Technologies Institute, Portugal and teaches at the Macromedia University of Applied Sciences, Germany. She is interested in emotions, feelings, gender equity, neuroaesthetics, yoga, and transdisciplinary art practices. Through her practice-based research and impact thinking strategies, she aims to contribute to broadening the reflection on neuroaesthetics and applied sciences.

Cíntia França
IST-UL 🇵🇹

Cíntia França holds a PhD in Sport Sciences from the University of Coimbra and a Master's in Physical Education Teaching from the University of Madeira. She is an integrated member of the Interactive Technologies Institute and at the Research Centre in Sports Sciences, Health Sciences, and Human Development (CIDESD).

Cláudia Silva

IST-UL 🇧🇷🇵🇹

Cláudia Silva received a PhD in Digital Media from the NOVA University of Lisbon within the University of Texas at Austin-Portugal Program scope in 2016. She is an Invited Assistant Professor at the Instituto Superior Técnico (IST).

Cristiano Predoso-Roussado

IST-UL 🇵🇹

Cristiano Pedroso-Roussado is a multidisciplinary researcher with expertise in life sciences and design. He performs in three professional domains: science, creativity, and management. Cristiano holds a postdoctoral researcher position at the Interactive Technologies Institute. The completion of an MSc dissertation has marked his academic journey focused on the neonatal pathogen Streptococcus agalactiae (iMM, Universidade de Lisboa, PT) and a PhD thesis that delved into the infant mice gut microbiota in the context of foetal alcohol syndrome disorder, employing nanopore sequencing techniques (University of Brighton, UK).

Diogo Cabral

IST-UL 🇵🇹

Diogo Cabral is a Research Fellow at the Institute of Interactive Technologies. Previously, he was an Assistant Professor at the University of Madeira (UMa), Portugal, and a post-doctoral researcher at the Helsinki Institute for Information Technology (HIIT), Finland. He received his PhD in Computer Science from NOVA University of Lisbon, Portugal, in February 2014.

Fábio Mendonça

UMa 🇵🇹

Fábio Mendonça received the BS and MSc degrees in electrical and telecommunications engineering from the University of Madeira and the PhD degree in electrical and computer engineering from Instituto Superior Técnico in partnership with Carnegie Mellon University. He works at the

University of Madeira and is a researcher with the Interactive Technologies Institute.

Frederico Duarte

IST-UL 🇵🇹

Frederico Duarte studied communication design and worked as a graphic designer in Portugal, Malaysia, and Italy. In 2010 he graduated from the School of Visual Arts in New York with an MFA in design criticism, and in 2021 he concluded his PhD in curatorship at Birkbeck College, University of London and the Victoria & Albert Museum.

Hildegardo Noronha

UMa 🇵🇹

Hildegardo Noronha, holds a Ph.D. in Computer Science - Human-Computer Interaction, from Universidade da Madeira. He also holds a BSc and an MSc degree in the same area from the same University. He has been researching since 2012 at Universidade da Madeira and at Madeira Interactive Technologies Institute, where he was a Ph.D. candidate in the projects CEDAR and LARGESCALE. He is now a post-doctoral researcher at the Interactive Technologies Institute in the project eGames Lab.

Ivo Roupa

IST-UL 🇵🇹

Ivo Roupa holds a Sports Science degree from the University of Lisbon, a master's degree in Youth Training from Lusófona University, and a PhD in Biomedical Engineering from the University of Lisbon. Throughout his doctoral studies, he concentrated on developing a computational framework for human motion analysis. This research led to the publication of multiple papers in Q1 and Q2 scientific journals, including Pattern Recognition, Mechanism and Machine Theory, and Archives of Computational Methods in Engineering. Additionally, Ivo Roupa actively contributed to three funded research projects during this period.

Luciana Lima

IST-UL

Luciana Lima's academic background includes Arts, Social Psychology, and Education Sciences. She did post-doctoral research in Multimedia Art at the Faculty of Fine Arts, University of Lisbon. She is currently a researcher at Instituto Superior Técnico.

Mariana Pestana

IST-UL

Mariana Pestana is an architect and researcher. She holds a PhD in Architectural Design from the Bartlett School of Architecture (2019). She is an Invited Assistant Professor at Instituto Superior Técnico and a researcher at the Interactive Technologies Institute.

Marta Fereira

IST-UL

Marta Ferreira is a communication designer and design researcher. She holds a Bachelor's degree in Communication Design and a MA in Typographic and Editorial Practices from FBAUL. She is working on a PhD in Digital Media from FCT/Técnico at ITI-Larsys. Marta's research interests lie in the intersection between different media and their communication potential. Through her PhD she is working on interaction projects related to sustainability, particularly focusing on developing engaging and action-focused climate change data interactions.

Mary Barreto

UMa

Mary received her PhD in Informatics Engineering in the domain of Human-Computer Interaction from the University of Madeira, where she conducted studies in the evaluation of eco-feedback technologies for families. She is currently Invited Assistant Professor at the University of Madeira, where she teaches Multimedia Systems, Interaction Design, Requirements Engineering and Interactive Systems and Technologies.

Nicholas Torreta

IST-UL

Nicholas is a Brazilian artist focusing on decolonizing arts and design, sharing his activities across various artistic fields such

as design, music and dance. Nicholas has a PhD in Design from Umeå Institute of Design (Sweden), a Masters in Design for Sustainability from Aalto University (Finland) and a Bachelors in Product Design from FAAP (Brazil).

Paulo Bala

IST-UL 🇵🇹

Paulo Bala holds a Ph.D. in Digital Media from Universidade Nova de Lisboa. Paulo also has an MA. In Entertainment Technology from Carnegie Mellon University and the University of Madeira. He is currently a post-doctoral researcher at Interactive Technologies Institute and a teaching assistant at Instituto Superior Técnico.

Pedro Ferreira

IST-UL 🇵🇹

Pedro Ferreira holds a PhD in Neuroscience from the Champalimaud Foundation and an MSc in Science Communication (Science Media Production) from Imperial College London, the latter of which he obtained as a Wellcome Science Media Fellow. Pedro teaches Neuroscience and Behavioral Genetics as an Invited Assistant Professor at ISPA.

Sandra Olim

IST-UL 🇵🇹

Sandra Câmara Olim holds a BA in Design and MA in Education from the University of Madeira. She also holds an MA in Entertainment Technology from Carnegie Mellon University. After working as an art and computer science teacher for several years, she channeled her experience in Art and Media to develop educational games for kindergarten students at the Regional Secretariat of Education. Her current research addresses the use of cross-reality (AR/VR/MR) technology, and game design elements towards developing serious games for children.

Sheikh Mostafa

ARDITI 🇵🇹

Sheikh Shanawaz Mostafa received a Ph.D. from Instituto Superior Técnico, Portugal, in 2020. He won several awards and funding and worked on biomedical signals, image processing, and hardware implementation research projects. His research interests include biomedical signal processing, image processing, natural language processing, artificial neural

networks, and hardware implementations. Currently, he works as a postdoctoral research fellow in ITI with ARDITI.

Shujoy Chakraborty

UMa

Shujoy Chakraborty is an Assistant Professor of Product Design at the University of Madeira and a Faculty Researcher with the Interactive Technologies Institute research unit. Shujoy holds a Ph.D. in Design (Summa Cum Laude) from Politecnico di Milano, specialised in Product Semantics and Shape Coding, focusing on the design of next-generation home appliances.

Terhi Marttila

IST-UL

Terhi Marttila holds a PhD in digital media from the University of Porto, and an MA and BA in art education from the University of Lapland. She is a post-doctoral fellow in the eGames lab (PRR) research project.

Vanessa Cesário

IST-UL

Vanessa Cesário, a PhD holder in Digital Media from Universidade do Porto. She is a post-doctoral researcher at the Interactive Technologies Institute and an Invited Professor at Instituto Superior Técnico.

Vera Fearns

IST-UL

Vera is a postdoctoral researcher at ITI with a multidisciplinary educational and professional background at the intersection of aesthetics, spatial practices, histories, and futures. At ITI, she explores the aesthetic ecologies of conservation through artistic interventions and feminist fabulations in the context of the Levadas on Madeira.

Yanick Trindade

IST-UL

Yanick Lambert Trindade holds a PhD in Design, a Master's in Product Design, and a Bachelor's degree from Faculdade de Arquitetura – Universidade de Lisboa.

He is a post-doctoral researcher in the eGames Lab. His research interests include Games, Virtual and augmented Reality, Culture and media, Interaction Design, and User Experience. Yanick has worked as a game artist, product designer, and interaction designer.

Collaborators

Arminda Guerra Lopes

IPCB

Arminda Guerra Lopes has been a professor at the Polytechnic Institute of Castelo Branco, Portugal, for twenty-five years. Arminda holds a PhD in Human-Computer Interaction from Leeds Metropolitan University in the U.K.

Cristina Sylla

UMinho

Cristina Sylla has a PhD in Educational Technology, a Master Degree in Technology and Digital Art, and a Master Degree in Literary Studies. She is a principal researcher at the Research Centre in Child Studies, University of Minho, and a collaborator at the Interactive Technologies Institute.

Elisângela Vilar

FA-UL

Elisângela Brito Pessôa Vilar holds a PhD in Ergonomics and Human Factors and a Post-Doc in Design (ULisboa). She is a research assistant at the Lisbon School of Architecture, University of Lisbon, and an integrated member of the CIAUD – Research Centre in Architecture, Urbanism and Design. She is also a collaborating researcher at the Interactive Technologies Institute.

Frederica Gonçalves

UMa

Frederica Gonçalves holds a PhD in Computer Science, specialisation in Human-Computer Interaction. She is an Adjunct Professor at the University of Madeira. Currently, she holds the position of member of the board of directors of the Agency for Innovation and Modernization of the Autonomous Region of Madeira.

Francisco Rebelo
FA-UL

Francisco Rebelo is an Associate Professor at the School of Architecture, University of Lisbon, and holds a PhD in Ergonomics – Human-Centred Design from Universidade de Lisboa, aggregated in Ergonomic Design at the same University.

Jean Rosa
CMF

Jean Rosa holds a Doctoral and Master's degree in Computer Science from the Federal University of Bahia (UFBA – Brazil) with an exchange internship at the Interactive Technologies Institute and a Technologist degree in Internet Systems from Tiradentes University (UNIT – Brazil). He is currently a researcher at the Interactive Technologies Institute.

Marco Neves
FA-UL

Marco Neves is an Associate Professor at the Lisbon School of Architecture, University of Lisbon, where he lectures in master's and doctoral degrees. He coordinates the Interaction Design Master's degree and Design, Interaction and Visualisation research group. Marco holds a PhD and a Habilitation in Design from the University of Lisbon.

Paulo Noriega
FA-UL

Paulo Noriega holds a Doctoral degree in Ergonomics (2010, University of Lisbon), a Master's degree in Human Engineering (2001, University of Minho) and a Bachelor's degree in Psychology (ISPA 1996). Currently, he is a Professor at the School of Architecture, University of Lisbon, and a researcher at the Interactive Technologies Institute.

Pedro Neves
FA-UL

Pedro Soares Neves holds Bachelor's degrees in Communication Design, in Architecture and a PhD in Art Sciences from the University of Lisbon. He is the promotor of

the Lisbon Urban Creativity Conference and ongoing associated International Research Topic.

Pedro Valente

UMa 🇵🇹

Pedro Valente obtained his PhD at the University of Madeira in computer science and software engineering, where he now works in the development of information. He is a member of the Interactive Technologies Institute (ITI), where he carries out research related to the development of information systems by modelling and automatic code generation, using a model-driven architecture approach, applying and developing business process-oriented and user-centred models.

Sheikh Mostafa

ARDITI 🇵🇹

Sheikh Shanawaz Mostafa received a Ph.D. from Instituto Superior Técnico, Portugal, in 2020. He won several awards and funding and worked on biomedical signals, image processing, and hardware implementation research projects. His research interests include biomedical signal processing, image processing, natural language processing, artificial neural networks, and hardware implementations. Currently, he works as a postdoctoral research fellow in ITI with ARDITI.

Teresa Furtado

FBA-UL 🇵🇹

Teresa Furtado is an artist and Associate Professor at the Department of Visual Arts and Design of the School of the Arts at the University of Évora. She is an integrated member of the Centre for Art History and Artistic Research (CHAIA) at the University of Évora (UÉ) and a collaborator of ITI/LARSYS, CIEBA/FBAUL and CICS.NOVA research centres. She has a degree in Painting (FBAUL, PT), a MA in Printmaking (RCA, UK), a PhD in Sociology (NOVA, PT) and a PhD in Fine Arts-Multimedia (FBAUL, PT).

International Collaborators

Adriana Mendonça

UCB

Adriana worked as a lecturer at the University of Cape Verde from 2004 to 2016. Furthermore, she held the position of National Director of Education in Cape Verde. Currently, she serves as a collaborating researcher at the Interactive Technologies Institute and as the Director of Research at TeSp Learning, actively engaging in research related to Educational Technologies and Special Education in collaboration with institutions in the UK and Sweden.

Antonio Ravelo

ULPGC

Antonio Gabriel Ravelo García (PhD) is an Associate Professor in the Department of Signal and Communications at the University of Las Palmas de Gran Canaria. He has participated in different research projects and has published numerous papers in scientific journals and conferences. His research interests include biomedical signal processing, nonlinear signal analysis, data mining and sensor-based systems.

Catia Prandi

UBol

Catia Prandi is a Senior Assistant Professor at the Departments of Computer Science and Engineering (DISI) of the University of Bologna (Italy). She is also an external collaborator at the Interactive Technologies Institute since 2016.

Deborah Castro

UGro

Deborah Castro is an Assistant Professor in Media Studies at the Centre for Media and Journalism Studies, University of Groningen (The Netherlands) and a research fellow at ITI-LARSyS (Portugal). In 2015, she received her PhD in Communication at Autonomous University of Barcelona.

José Nocera

UWL

José Nocera is an affiliate Full Professor at the Interactive Technologies Institute, a Professor in Sociotechnical Design,

and Head of the Sociotechnical Group for Innovation and User Experience at the University of West London. He is the current Vice Chair for IFIP TC 13 for Equity and Development and Chair for the British Computer Society Sociotechnical Specialist Group.

Nuno Correia
UTallin

Nuno N. Correia is an Associate Professor in Digital Transformation at Tallinn University. Since 2000, he has been teaching and conducting research in media art and interaction design in several universities internationally. He holds a PhD in Art and Design in New Media from Aalto University (Finland). Nuno is a visiting lecturer at Aalto University and an associated researcher at the Interactive Technologies Institute.

Nuno Otero
UGre

Nuno Otero joined the University of Greenwich in 2022 as a Senior Lecturer. He holds a bachelor's degree in Psychology from ISPA, Portugal, and PhD from the University of Sussex, UK. He has held posts in teaching and research at INESC-ID (Portugal), University of Hertfordshire (UK), University of Minho (Portugal), and Linnaeus University (Sweden).

Pedro Sanches
UUmea

Pedro Sanches is an Assistant Professor at the Department of Informatics, Umeå University in Sweden. He received his Ph.D. in Information and Communication Technology from KTH Royal Institute of Technology, in Sweden.

Sabrina Scuri
PoliMi

Sabrina Scuri holds a PhD in Design from the Polytechnic University of Milan, where she is currently employed as a Researcher on a project concerned with urban regeneration. From 2017 to 2020, Sabrina was a post-doctoral Researcher at the Interactive Technologies Institute, where she worked on several research projects concerned with Sustainability and HCI.

Sónia Matos

U Bolzano

Field Guide's Principal Investigator, Sónia develops work that intersects design research and environmental education. She is an Affiliate Researcher of ITI-LARSyS and is currently a Lecturer at the School of Design at the University of Edinburgh.

Teresa Almeida

UUmea

Teresa Almeida received a PhD in HCI/Interaction Design from Newcastle University, UK. She was a post-doctoral researcher at KTH Royal Institute of Technology in Stockholm and the IT University of Copenhagen in Denmark. Teresa is an Associate Professor at the Department of Informatics, Umeå University, in Sweden, and an Invited Associate Professor at Instituto Superior Técnico.

PhD students

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Ana Carolina Dias, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Mónica Mendes

Ana Gariso, New University of Lisbon, Portugal, supervised by Pedro Neves

Ana Henriques, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Sónia Rafael

Ana Isabel Mendonça Rodrigues, University of Madeira, Portugal, supervised by Diogo Cabral and Pedro Campos.

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Noha Mokhtar, University of Lisbon, supervised by Augusto Esteves

Nurha Yingta, University of West London, UK, supervised by Jose Nocera

Nuno Alexandre Silva Velosa, Instituto Superior Técnico, University of Lisbon, Portugal, supervised by Lucas Pereira

Omar Valdiviezo, School of Architecture, University of Lisbon, Portugal, supervised by Marco Neves

Padideh Pezeshki, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Sónia Rafael

Parisa Saadati, University of West London, UK, supervised by Jose Nocera

Paula Malamud, School of Architecture, University of Lisbon, Portugal, supervised by Marco Neves

Patrícia Piedade, University of Lisbon, Portugal, supervised by Hugo Nicolau

Preety Baglat, University of Madeira, Portugal, supervised by Morgado Dias

Rafaela Martins Nunes, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Patrícia Gouveia

Rosa Luna, School of Architecture, University of Lisbon, Portugal, supervised by Marco Neves

Rosa Retuerto, School of Architecture, University of Lisbon, Portugal, supervised by Sónia Rafael

Rui Xavier, Instituto Superior Técnico, University of Lisbon, Portugal, supervised by José Luís Silva

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Seyed Mohsen, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Sónia Rafael

Shuhao Ma, Instituto Superior Técnico, University of Lisbon, Portugal, supervised by Nuno Nunes and Valentina Nisi

Soraia Paulo, Instituto Superior Técnico, University of Lisbon, Portugal, supervised by Hugo Nicolau

Teresa Veiga Furtado, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Patrícia Gouveia

Tiago Miguel Coelho Rodrigues de Oliveira, School of Architecture, University of Lisbon, Portugal, supervised by Paulo Noriega and Francisco Rebelo

Tiago Mindrico, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Patrícia Gouveia

Tin Shine Aung, Faculty of Fine Arts, University of Lisbon, Portugal, supervised by Mónica Mendes

Tochukwu Chukwu, University of West London, UK, supervised by Jose Nocera

Zihao Wang, University of Lisbon, Portugal, supervised by Francisco Rebelo

Research projects

Overview

Table 7: ITI's Projects concluded and on-going.

Project	Funding Agency	Start year	End year	Budget (ITI)
AHEAD	European Commission	2024	2028	726 000 €
Bauhaus of the Seas Sails	European Commission	2023	2025	609 875 €
BIG ERA Chair	European Commission	2020	2025	2 456 703 €
DCitizens	European Commission	2022	2025	551 871 €
kNOwHATE	European Commission	2022	2023	1 619 €
LoGaCulture	European Commission	2023	2026	729 709 €
MEMEX	European Commission	2021	2022	210 131 €
MODINA	European Commission	2023	2024	70 783 €
RELISH	European Commission	2025	2028	421 801 €
Science4Girls	European Commission	2020	2022	24 761 €
SHIFT2DC	European Commission	2023	2027	281 500 €
SYNTECS	European Commission	2022	2025	225 125 €
TIDAL ArtS	European Commission	2024	2027	163 807 €
Blockchain.PT	IAPMEI/PRR	2023	2025	863 580 €
eGames Lab	IAPMEI/PRR	2023	2025	2 033 143 €
ALAMO	FCT	2023	2024	28 727 €
BRANT	FCT	2020	2022	43 264 €
DCLGP	FCT	2023	2025	95 953€

Project	Funding Agency	Start year	End year	Budget (ITI)
FIELDGUIDE	FCT	2020	2022	144 397 €
LARGESCALE	FCT	2020	2021	105 228 €
nexIK	FCT	2022	2023	49 869 €
REDEMA	FCT	2020	2021	210 843 €
RELIABLE	FCT	2021	2022	32 608 €
SSi	FCT	2022	2023	49 312 €
BASE	Madeira 14-20	2020	2022	85 964 €
bioMask	Madeira 14-20	2022	2023	107 644 €
FIIHUB	Mac 14-20	2020	2022	102 398 €
INTERAGUA	Mac 14-20	2020	2022	160 889 €
INTERWHALE	Mac 14-20	2021	2023	193 089 €
MARITIMO TRAINING LAB	Madeira 14-20	2020	2022	388 554 €
RRSO	Madeira 14-20	2022	2023	68 324 €
SAFE	Madeira 14-20	2022	2023	90 594 €
SEEApp	Madeira 14-20	2022	2023	122 951 €
SUAVE	Madeira 14-20	2022	2023	14 521 €

AHEAD
2024-2027

The AHEAD project aims to develop a simulation environment for optimally locating EV charging stations and efficiently using power grid resources in urban and rural areas.

Utilising AI models, it includes spatial and power grid layers to place chargers where needed and where the grid can support them. Smart charging algorithms will be tested to minimise network impact and ensure economic benefits. The project involves diverse partners from the EV value chain and focuses on user experience and cybersecurity.

Three demonstration sites will assess the technical and economic feasibility of smart charging for light and heavy-duty EVs, and boats. In Portugal the demonstration activities will focus on the seamless integration of public and private EV charging infrastructures. The different activities will be developed and demonstrated in the locations, one is Lisbon and two in Funchal.

Programme: HORIZON.2.5 - Climate, Energy and Mobility

Topic: HORIZON-CL5-2023-D3-03-03- Sustainable, secure and competitive energy supply

Funding Scheme: HORIZON-IA HORIZON Innovation Actions

Partners: A2A SPA; AMINA DISTRIBUTION AS; AZIENDA TRASPORTI MILANESI; CAMARA MUNICIPAL DO FUNCHAL; TECHNICAL UNIVERSITY OF DENMARK; EASELINK GMBH; EEM EMPRESA DE ELECTRICIDADE DA MADEIRA SA; ELEKTRO GORENJSKA PODJETJE ZA DISTRIBUCIJO ELEKTRICNE ENERGIJE DD; INESC ID - INSTITUTO DE ENGENHARIADE SISTEMAS E COMPUTADORES, INVESTIGACAO E DESENVOLVIMENTO EM LISBOA; IST-ID ASSOCIACAO DO INSTITUTO SUPERIOR TECNICO PARA A INVESTIGACAO E O DESENVOLVIMENTO; EMPOWER OY; AVERE - THE EUROPEAN ASSOCIATION FOR ELECTROMOBILITY; LABELEC ESTUDOS DESENVOLVIMENTO E ACTIVIDADES LABORATORIAIS SA; MOBI.E SA; NORSK ELBILFORENING; NTT DATA ITALIA SPA; ROSKILDE UNIVERSITET; Spirii ApS; UNARETI Spa; UNIVERSITETI POLITEKNIK I TIRANES

Bauhaus of the Sea Sails
2023-2025

The Bauhaus of the Seas Sails intends to promote the design of complex interactions between human and more-than-human agents.

The Bauhaus of the Seas Sails will build a portfolio of demonstrator pilots: the Atlantic Tagus River Estuary, the Lagoon in the Adriatic and the Gulf of Genoa, the Atlantic Rhine–Scheldt Delta and the Öresund Strait and North Sea / Elbe River. All sites have committed to the BoSS, including large-scale initiatives that span significant coastal areas of the city/region, capable of adapting and scaling up the Horizon Europe missions' activities, creating a much-needed interconnection between the cities, rivers, seas, and oceans. These cities/regions have committed their ambitious development plans to the BoSS, including a clear leadership commitment. As such, the demonstrator pilots will serve as a reference for the broader implementation of the New European Bauhaus under the vision of the BoSS, which also includes a list of observer regions, including representatives from the outermost regions of Azores, Madeira and Canary Islands and representatives from Africa and the Americas (Brazil).

Programme: HORIZON.2.5 - Climate, Energy and Mobility

Topic: HORIZON-MISS-2021-NEB-01-01 - Support the deployment of lighthouse demonstrators for the New European Bauhaus initiative in the context of Horizon Europe missions

Funding Scheme: HORIZON-CSA - HORIZON Coordination and Support Actions

Partners: IST-ID Associação Do Instituto Superior Tecnico Para A Investigação e o Desenvolvimento (PT); Magellan Circle (PT); TBA21 – Academy (ES); Ca' Foscari University of Venice (IT); University of Malmø (SE); Genoa Municipality (IT); Het Nieuwe Instituut (DE); Delft University of Technology (NL); Marine Education Center / Naturum Öresund (SE); North Adriatic Sea Port Authority (IT); Venice Municipality (IT); IUAV University (IT); Fondazione Istituto Italiano di Tecnologia (IT); Gulbenkian Foundation (PT); Oeiras Municipality (PT); Lisbon Municipality (PT); EGTS Linieland van Waas en Hulst (BE); Deichtorhallen Hamburg (DE)

CORDIS | Bauhaus of the Sea Sails website

BIG ERA Chair 2020-2025

Enhancing the research and innovation potential of Tecnico through Blockchain technologies and design Innovation for social Good

Blockchain and distributed ledger technologies (DLT) deliver a potential that allows secure, transparent, and user-centric digital services, encourages new and advanced business models, and promotes decentralised social innovations. The EU is furthering an integrated approach for their application in various domains. To that end, the EU-funded

BIG project intends to seek funding for the expansion of the research and innovation potential of the Instituto Superior Técnico of the University of Lisbon. The project will support the establishment of a digital ecosystem that will take advantage of blockchain technologies and design innovation for social good through the hiring of an ERA Chair holder. Moreover, it will support the deployment and testing of blockchain technologies in strategic application domains, aiming to increase Lisbon's potential as a European high-tech hub for the data economy.

Programme: H2020-EU.4. c. - Establishing ‚ERA Chairs' MAIN PROGRAMME

Topic: WIDESPREAD-06-2020 - ERA Chairs

Funding Scheme: CSA - Coordination and support action

Partners: Instituto Superior Técnico (PT)

CORDIS | BIG ERA Chair website

DCitizens 2022 - 2025

DCitizens

Fostering Digital Civics Research and Innovation in Lisbon

DCitizens aims to foster Digital Civics research and innovation in Lisbon. Digital Civics is a cross-disciplinary field that posits the use of technology to empower citizens and non-state actors to co-create, take an active role in shaping agendas, make decisions about service provision, and make such provisions sustainable and resilient. Particularly how digital technologies can scaffold a move from transactional to relational service models and the potential of such models to reconfigure power relations between citizens, communities, and institutions.

Funding scheme: Horizon Europe, Twinning

Programme: HORIZON.4.1 - Widening participation and spreading excellence; HORIZON.4.1.2 - Twinning

Topic: HORIZON-WIDERA-2021-ACCESS-03-01 - Twinning

Funding Scheme: CSA - Coordination and support action

Partners: IST-ID Associação Do Instituto Superior Tecnico Para A Investigação e o Desenvolvimento (PT); Italian Institute of Technology (PT); University of Siegen (DE); Northumbria University (UK)

CORDIS | DCitizens website

LoGaCulture
2023 - 2025

Locative Games for Cultural Heritage

LoGaCulture will bring together the leaders in digital locative games, in collaboration with some of Europe's most significant cultural institutions, to enable a new generation of locative cultural heritage games through proposals for design guidance, validated ethical frameworks, and an open, extensible, and reusable set of technologies. Through a set of five interlinked case studies across four countries, the project will gather evidence from the heritage design space for interactivity, narratives, and play; look at how augmented reality and soundscapes can affect visitors' immersion; explore the place of locative heritage in the wider visitor journey through transmedia and social visiting; and explore how the barrier to authoring and deploying such systems might be lowered. The goal is to create a step change in knowledge in how to design, deploy, and maintain locative heritage games and lay the groundwork for their mass adoption by cultural institutions by allowing them to treat locative experiences that offer new forms of access and engagement as an integrated part of their existing cultural heritage work.

Programme: HORIZON.2.2 - Culture, creativity, and inclusive society; HORIZON.2.2.2 - Cultural Heritage

Topic: HORIZON-CL2-2022-HERITAGE-01-09 - Games and culture shaping our society

Funding Scheme: HORIZON-RIA - HORIZON Research and Innovation Actions

Partners: Instituto Superior Técnico (PT); IST-ID Associação Do Instituto Superior Tecnico Para a Investigação e o Desenvolvimento (PT); Trinity College Dublin (IE); Hochschule RheinMain (DE); Municipality of Funchal (PT); ECCOM – European Centre for Cultural Organisation and Management (IT); Senckenberg Museum, Frankfurt (DE); The National Trust (UK); Bournemouth University (UK); University of Southampton (UK); Office of Public Works (IE).

CORDIS | LoGaCulture website

MEMEX
2020 - 2022

MEMories and EXperiences for inclusive digital storytelling

The MEMEX project, funded by the European Union, aims to enhance our cultural heritage using digital storytelling tools that are inclusive and accessible to all. By combining memories with physical places, locations, and objects, the project seeks to foster social unity. MEMEX will employ assisted augmented reality experiences, presenting stories that interweave the memories of participating communities. The project will develop techniques to automatically or semi-automatically link images to specific locations. The focus of MEMEX is on Barcelona's migrant women, shedding light on their experiences. The project will also highlight the residents of Paris' XIX district, known for its significant immigrant community, as well as second- and third-generation Portuguese migrants in Lisbon.

Programmes: H2020-EU.3.6. - SOCIETAL CHALLENGES - Europe In A Changing World - Inclusive, Innovative And Reflective Societies; H2020-EU.3.6.3.1. - Study European heritage, memory, identity, integration and cultural interaction and translation (...), to better inform and understand the present by richer interpretations of the past; H2020-EU.3.6.3.2. - Research into European countries' and regions' history, literature, art, philosophy, and religions and how these have informed contemporary European diversity

Topic: DT-TRANSFORMATIONS-11-2019 - Collaborative approaches to cultural heritage for social cohesion

Funding Scheme: RIA - Research and Innovation action

Partners: Istituto Italiano di Tecnologia (IT); IST-ID Associação Do Instituto Superior Tecnico Para a Investigação e o Desenvolvimento (PT); NOHO Limited (IE); EY Advisory SpA (IT); Centre National de la Recherche Scientifique (FR); Michael Culture Association (BE); European Centre for Cultural Organisation and Management (IT); Fundacio Interarts per a la Cooperacio Cultural Internacional (ES); Mapa das Ideias (PT); University Ca'Foscari di Venezia (IT); Dédale Association (FR).

CORDIS | MEMEX website

MODINA
2023 - 2026

MODINA

Movement, Digital Intelligence, and Interactive Audience

The project Movement, Digital Intelligence, and Interactive Audience (MODINA) aims to expand the creative possibilities for contemporary dance performances and augment the experience for the audience using digital technology – with an emphasis on exploring

artificial intelligence (AI) and audience interaction, on-site and online. This aim has two interconnected approaches, targeting dance artists, media artists (creative technologists) and audiences. The first approach is to build capacity for dance artists and media artists regarding new digital and AI-based approaches in dance – for preparing, performing, distributing, and re-purposing dance works (including online) – through collaboration between artists, technologists, and our team. The second approach is to allow audiences to engage with performances in an augmented way: enhancing the stage context with technology; using audience interaction strategies; through online channels; or a combination of these. MODINA will involve multiple events to engage with artists and audiences: Artistic Residencies; Networking Events; Workshops; Seminars; and Performance Showcases.

Programme: CREA – Creative Europe Programme

Topic: CREA-CULT-2022-COOP-2 - European Cooperation projects Medium Scale

Funding scheme: CREA-LS CREA Lump Sum Grants

Partners: Tallinn University (EE); Soltumatu Tantsu Uhendus (EE); Hochschule Dusseldorf (DE); Tanzhaus Nrw Ev (DE); IST-ID Associação Do Instituto Superior Tecnico Para a Investigação e o Desenvolvimento (PT); Center Urbane Kulture Kino Siska (SI); Trafo Kortars Muveszetek Haza (HU); Centrul National Al Dansului Bucuresti (RO).

CORDIS | MODINA website

RELISH
2024-2027

The AHEAD project aims to develop a simulation environment for optimally locating EV charging stations and efficiently using power grid resources in urban and rural areas.

Through an innovative and systematic approach to the understanding and use of traditional EU recipes via digital and AI-powered technology, RELISH embarks in the production of a visual and verbal food web platform that aims to mediate social cohesion, reinforce EU cultural heritage transmission at home and abroad through education and public engagement, while addressing sustainable practices in the EU hospitality sector.

Programme: HORIZON-CL2-2024-HERITAGE-01

Topic: HORIZON-CL5-2023-D3-03-03- Sustainable, secure and competitive energy supply

Funding Scheme: HORIZON-IA HORIZON Innovation Actions

Partners: U. Durham, U. Milano, City University London, Universidade Alicante, Institute Paul Bocuse, Roskilde Universitet, U. College Cork, Atlantic Technological University, Barcelona Supercomputing Center, IST-ID.

SID
2024 – 2026

Imagining Sustainable Futures: Expanding the Discussion on Sustainable HCI

The main objective of the project is build the teaching foundations in higher education in interaction design that will pave the way for a green digital transformation articulated by the notion of Sustainable Interaction Design. To inspire teachers and students to work for a green transformation in professional and private life and to have this spread beyond Europe.

The project will progress on internal development activities identifying the parts and design the overarching curriculum for SID. This development progress will be complemented by three teaching pilots including distributed teaching, joint physical teaching and MOOC testing and informing the overarching design of the curriculum. Thirdly, the project will involve peers in the global research network in interaction design to inform the development of curriculum for Sustainable Interaction design.

The main results of the project is research-based, pilot-tested and validated curriculum for teaching Sustainable Interaction Design made available as Online Educational Resource (OER). The work will be valuable to Higher Education interaction design programs taught in arts, science, technology and social sciences. The results are particularly aimed for use by teachers, and subsequently for students enhanced learning..

Programme: Erasmus +

Topics: Sustainable Interaction Design

Key Action: Cooperation for innovation and the exchange of good practices

Partners: Aarhus (DK), TUDelfct (NL), Politecnico Milano (IT), U. Lapland (FI), IST-ID (Portugal).

Science4Girls
2020 – 2022

Making science attractive to female students through open science schooling focused on climate change

The overall and most significant innovation of Science4Girls is that it is the first practice-based project in the EU to systematically use climate change engagement to allow young female students to create fundamentally new images of science, allowing them to reconcile science learning and a life in science with the development of female identities.

This innovation is underpinned by the methodological application of open science schooling – the key Commission approach to the highly needed innovation of science education in schools. OSS will allow female students to leave traditional, rather theoretical science instruction and work with real-life science and real-world community concerns. Through collaboration with the relevant local communities the girls will be able to work in climate change learning missions designed by them, and to the extent possible fulfil the goals established by themselves defined in the learning missions.

Programme: Erasmus +

Topics: Gender Equality / Equal Opportunities; Environment and Climate Change; Pedagogy And Didactics

Key Action: Cooperation for innovation and the exchange of good practices

Partners: Institut de Vilafant (ES); ITA-SUOMEN YLIOPISTO (FI); Lacko Internationella Grundskola AB (SE); Pasvalio Levens pagrindine mokykla (LT); Scoala Gimnaziala Gheorghe Titeica (RO); SREDNJA ELEKTRO-RACUNALNISKA SOLA MARIBOR (SI); Universidade de Lisboa (PT); Working with Europe/Treballant amb Europa Associació (ES).

CORDIS | Science4Girls website

SHIFT2DC
2023 - 2027

SHIFT to Direct Current

The SHIFT to Direct Current (SHIFT2DC) project is a forward-thinking initiative focused on revolutionizing the way we use electricity. Its main objective is to promote the use of direct current (DC) power solutions at both medium voltage (MV) and low voltage (LV) levels, making our electrical systems more efficient and sustainable.

SHIFT2DC takes a comprehensive approach, covering design, simulation, testing, validation, and application of DC solutions. It's not limited to a specific industry, which makes it versatile and adaptable across various sectors. This project will evaluate the

feasibility, cost-effectiveness, environmental impact, and overall benefits of implementing DC solutions.

The proposed solutions will be tested in different environments, including ports. Port facilities typically have unique energy demands due to their extensive operations, making them an essential focus. The project will explore how DC power can improve efficiency, lower costs, and reduce environmental footprints in port operations.

Programme: HORIZON -CL5 - Climate, Energy and Mobility

Topic: HORIZON-CL5-2023-D3-01-11 — Demonstration of DC powered data centres, buildings, industries, and ports

Funding scheme: HORIZON-IA - HORIZON Innovation Actions

Partners: INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa (PT); Électricité de France (FR); CNET Centre For New Energy Technologies SA (PT); Fundacion Tecnalia Research & Innovation (ES); Rheinisch-Westfaelische Technische Hochschule Aachen (RWTH Aachen) (DE); Fraunhofer Gesellschaft zur Forderung der Angewandten Forschung EV (DE); Schneider Electric Industries SAS (FR); DC-Systems B.V. (NL); Nexans France (FR); Nexans Sweden (SE); Fundacion Circe Centro de Investigacion de recursos Y Consumos Energeticos (ES); Watt & Well (FR); Tallinna Tehnikaülikool (EE); Bachmann GmbH (DE); Hiro Microdatacenters B.V. (NL); Eaton Industries GmbH (DE); Eaton Elektrotechnika SRO (CZ); Eaton Industries (AT); Hitachi Energy Spain SAU (ES); Phoenix Contact Electronics GmbH (DE); Phoenix Contact Power Supplies GmbH (DE); Phoenix Contact GmbH & Co. KG (DE); APRAM – Administração dos Portos da Região Autónoma da Madeira, SA (PT); IST-ID Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (PT); JJ Cooling Innovation Sàrl (CH); PCB Design Kutato ES Fejleszto Korlatolt Felelossegu Tarsasag (HU); European Heat Pump Association (BE); Fincantieri SI SPA (IT).

SYNTECS
2022 - 2025

SYNTECS
SUSTAINABLY AND DIGITALLY DRIVEN HIERARCHICAL LASER TEXTURING FOR COMPLEX SURFACES

Sustainably and Digitally-Driven Hierarchical Laser Texturing for Complex Surfaces

SYNTECS brings together a consortium of industry leaders and academic and research organisations at the forefront of laser-based processing. SYNTECS is designed to tackle the multiple challenges experienced with current chemical and mechanical surface treatments. SYNTECS aims to develop and demonstrate a digital and green laser texturing approach to generating complex multifunctional surfaces. A machine platform will be developed (TRL6) that enables interchangeable Direct Laser Writing (DLW), Direct Laser

Interference Patterning (DLIP) and Laser Induced Periodic Surface Structuring (LIPSS), with a multi-axis motion stage for processing complex geometries and an inline monitoring and control system. The combined system will streamline the generation of hierarchical surface textures, i.e., textures which combine at least two significantly different-sized features.

Programme: HORIZON.2.4 - Digital, Industry and Space MAIN PROGRAMME; HORIZON.2.4.1 - Manufacturing Technologies

Topic: HORIZON-CL4-2022-TWIN-TRANSITION-01-02 - Products with complex functional surfaces (Made in Europe Partnership) (RIA)

Partners: Laser Engineering Applications SA (BE); Fusion Bionic Gmbh (DE); Farplas Otomotiv Anonim Sirketi (TR); 3 Drivers - Engenharia, Inovacao Eambiente Lda (PT); Centro Ricerche Fiat Scpa (It); Depuy Ireland Unlimited Company (IE); Centre Technique Industriel De La Plasturgie Et Des Composites (FR); IST-ID Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (PT); European Federation for Welding Joining and Cutting (BE); the Manufacturing Technology Centre Limited (UK); the University of Birmingham (UK); Iconiq Innovation Ltd (UK); European Thermodynamics Limited (UK).

Funding Scheme: RIA - Research and Innovation action

CORDIS | SYNTECS website

Tidal Arts
2024 - 2027

SYNTECS
SUSTAINABLY AND DIGITALLY DRIVEN HIERARCHICAL LASER TEXTURING FOR COMPLEX SURFACES

TransformIng anD inspiring Aquatic Landscapes through Art and Sciences

TIDAL ArtS will reconcile the dichotomy of human versus nature, tackling the current climate, environmental and biodiversity crisis. To this end, art and science will work in alliance with civil society, citizens, cultural and technological institutions to increase awareness about the challenges faced by the ocean and inland waters and inspire the mobilisation of creative solutions for their protection and restoration. TIDAL ArtS puts forward an interdisciplinary and interspecies approach that involves scientists (as knowledge holders), citizens (as end users and co-creators of the public space), artists and creatives (as those who can look at the current challenges from a unique perspective and engage the public through symbolic and performative work). Our approach challenges the binary thinking that has historically divided nature and culture (as well as humans and non-humans) and engages instead with a tidal logic that nurtures currents of influence between disciplines and species. Taking water as both a subject and a praxis, TIDAL ArtS

engages with the cyclical movement of water as a co-design methodology, with several rounds of contact with local citizens, scientists, and cultures in each phase, progressively widening the waves of influence of the project.

Programme: Actions for the implementation of the Mission Restore our ocean and waters by 2030 (HORIZON-MISS-2023-OCEAN-01)

Topic: HORIZON-MISS-2023-OCEAN-01-11

Partners: SUBMARINER Network, Associacão do Instituto Superior Tecnico, University College Cork, PRO PROGRESSIONE KULTURALIS NONPROFIT KOZHASZNU KFT, Konsortium Deutsche Meeresforschung, Aalto University, Consejo Superior de Investigaciones Científicas, Digital Training Institute

Funding Scheme: HORIZON-CSA HORIZON Coordination and Support Actions

CORDIS | Tidal Arts website

Blockchain.PT 2023-2025

Agenda "Descentralizar Portugal com Blockchain

The agenda "Decentralizing Portugal with Blockchain" creates a national blockchain ecosystem, emphasizing the importance of technology as a driver of innovation and aiming to seize global business opportunities generated by this technology. We have brought together 56 organizations (24 companies, 15 research and innovation entities, 2 associations, 5 public entities, and 10 associated partners), under the leadership of VOID Software, organised into 6 vertical work packages (Agriculture and Agri-food; Health; Sustainable and Smart Territories; Sports, Leisure, and Culture; New Knowledge Economy; Digital Asset Management) and 4 horizontal work packages (Management; Empowerment; Innovation and Dissemination; Interoperability). The results of these partnerships, with an investment exceeding 72 million euros, will enable the launch of 26 products with high export potential and scalability. The ecosystem created in this agenda will allow Portugal to become a European leader in this technology, helping the country become more digital, green, and resilient.

Dimension: Resilience

Component: Research and Innovation

Funding: Plano de Recuperação e Resiliência Agendas - Mobilising Alliances for the Reindustrialisation

Partners: Universidade Nova De Lisboa (PT); Zhartabal Enterprise, LDA (PT); Symbolic Protocol, S.A. (PT); Celfocus, S.A. (PT); Sensefinity, Lda. (PT); Enredo Imparcial LDA (PT); Oestecim (PT); INESC ID - Instituto De Engenharia De Sistemas E Computadores, Investigação E Desenvolvimento Em Lisboa (PT); Taikai, S.A. (PT); Município Do Fundão (PT); Universidade De Aveiro (PT); Void Software, S.A. (PT); Associação Iscte Conhecimento e Inovação - Centro de Valorização e Transferência de Tecnologias (PT); Instituto Politécnico De Leiria (PT); Digital Assets Anchorage, Unipessoal LDA (PT); Enredo Pacato - LDA (PT); Block Bastards, LDA (PT); V4H - Associação para a Investigação em Valor e Inovação Tecnológica em Saúde (PT); IST-ID, Associação Do Instituto Superior Técnico Para A Investigação E O Desenvolvimento (PT); Associação Universidade-Empresa Para O Desenvolvimento-TECMINHO (PT); SOFTI9 - Inovação Informática LDA (PT); Unlock Decentralization, LDA (PT); BETA-I Collaborative Innovation, LDA (PT);Inforlândia, SA (PT); INESC TEC-Inst.Eng.De Sistemas E Computadores, Tecnologia E Ciência (PT); INEGI - Instituto de Ciência e Inovação em Engenharia Mecânica e Engenharia Industrial (PT); GHP - Global Health Platform, S.A. (PT); Toolpor LDA (PT); Instituto Politecnico Da Guarda (PT); Instituto Politécnico De Tomar (PT); Load Interactive, LDA (PT); Associação Para O Pólo Das Tecnologias De Informação, Comunicação E Electrónica - TICE.PT (PT); Instituto Superior Tecnico (PT); Wegenblock, LDA (PT); Centro Hospitalar Universitário de Santo António (PT); INOVINESC INOVAÇÃO (PT); MC Shared Services, S.A. (PT); CIM das Beiras e Serra da Estrela (PT); E2TECH LDA (PT);

About Blockchain.PT

eGames Lab 2022 – 2025

The eGames Lab aims to build capacity for retaining in the country a young, well-trained generation of different backgrounds: design, storytelling, engineering, marketing, and fine arts. It will also attract key stakeholders to Portugal and create a long-lasting sustainable ecosystem for game design and development, playtesting, and successfully bringing the results from creative research and development efforts in interactive entertainment to market.

Dimension: Resilience

Component: Research and Innovation

Funding: Plano de Recuperação e Resiliência Agendas - Mobilising Alliances for the Reindustrialisation

Partners: Município do Funchal (PT); Associação Comercial E Industrial Do Funchal-Camara De Comercio E Industria Da Madeira (PT); YACOOBA - Turismo, Lazer E Tecnologia,

LDA (PT); IST-ID, Associação Do Instituto Superior Técnico Para A Investigação E O Desenvolvimento (PT); REDCATPIG - Desenvolvimento E Comercialização, LDA. (PT); WOWSYSTEMS - Informática Lda (PT); PACT - Parque Do Alentejo De Ciência E Tecnologia, S.A. (PT); Agência De Promoção Da Cultura Atlântica (PT); FOOTAR, S.A. (PT); Startup Madeira - More Than Ideas, LDA (PT); INFINITY GAMES, LDA (PT); WALKME Mobile Solutions, LDA (PT); AFTM - Associação Do Filme, Televisão E Multimédia Da Madeira (PT); FAPPTORY- Soluções Tecnológicas LDA (PT); Dream Expectation - LDA (PT); NOS Madeira Comunicações, S.A. (PT); 4SPIRO - Sociedade De Consultoria, LDA (PT); SOLVIT - Innovation & Development On Telecommunications, LDA (PT); GREENER ACT, LDA (PT); Subtlenomad Unipessoal LDA (PT); Jupiter Wisdom LDA (PT); Associação De Jovens Empresários Madeirenses - AJEM (PT).

About eGames Lab | eGames Lab website

ALAMO
2023 - 2024

Accurate Federated Learning with Uncertainty Quantification for DER Forecasting Applied to Smart Grids Planning and Operation

The ALAMO project aims to address the challenges posed by the increasing integration of Distributed Energy Resources (DERs) into power grids while ensuring the privacy of consumers and accounting for uncertainties in forecasting models. The primary objectives include the development of accurate forecasting algorithms using Federated Learning, quantification of epistemic and aleatoric uncertainty in these models, and their integration into operational planning tools for Distribution System Operators (DSOs). Current planning tools lack privacy considerations and do not adequately account for uncertainties, rendering them obsolete in the context of growing renewable energy sources (RES) connected to distribution systems. This project also emphasizes the importance of coordination between Transmission System Operators (TSOs) and DSOs, especially in services like frequency regulation and congestion management. Additionally, it addresses the incorporation of uncertainties in Peer-to-Peer (P2P) energy markets, which are becoming increasingly prevalent.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Associação do Instituto Superior Técnico para a Investigação e o Desenvolvimento (PT); INESC-ID - Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa (PT).

BRANT
2018 – 2021

Belief Revision Applied to Neurorehabilitation Therapy

Cognitive deficits are common after brain injury, dementia, and normal cognitive decline due to aging. These impact the performance of activities of daily living and limit people's independence, with a high monetary and societal cost. Cognitive rehabilitation has been shown to be the most effective way to address this problem. However, current rehabilitation has some limitations: a) Rehabilitation tools are not adaptive and may not be adequate for every patient. A suboptimal set of exercises limits the impact of rehabilitation and reduces engagement in rehabilitation. b) Interventions are time consuming and have a high cost and are usually implemented in clinical environments. BRaNT is an interdisciplinary effort to create a new set of ICT for at home rehabilitation that addresses scientific limitations of current practices and provides solutions for the sustainability of health systems and contributes to the improvement of quality of life of patients.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Universidade da Madeira (PT); Universidade Nova de Lisboa (PT)

About BRANT

DCLGP
2023 – 2025

The Contemporary Portuguese Sign Language Dictionary: From the App to the Classroom

The project aims to build a digital dictionary for Portuguese Sign Language (LGP) to be used in classrooms. The project aims to have a positive impact (i) on the acquisition of LGP by Deaf children, (ii) on the consolidation of the language in Deaf young people, (iii) in language learning by family members of Deaf children and young people, (iv) as a source of information for LGP interpreters and teachers of the Deaf, and (v) in LGP learning by hearing people.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Universidade Católica Portuguesa (UCP) (PT); IST-ID Associação Do Instituto Superior Tecnico Para a Investigação e o Desenvolvimento (PT).

DCLGP website

FIELD GUIDE
2018 - 2022

Field guide project aims to establish an improvement in the levels of scientific, conservation and environmental literacy among children and young people living in the Azores archipelago, a region of Portugal with one of the lowest school rates. Developed at the intersection of 'on-the-spot learning' and 'mobile learning', this project aims to promote educational experiences that can have a positive impact on the region. Through the design of a mobile application (app.), The project aims to provide a new generation with an opportunity to explore, learn and monitor the natural environment surrounding it. An application will be designed to interact with biodiversity and environmental monitoring portals and existing databases. Also use the power of geographic location to foster the understanding of the natural world by young people and children in the Azores, making them aware of the uniqueness and fragility of oceanic island ecosystems.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Fundação Gaspar Frutuoso (PT)

About FIELD GUIDE

KNOwHATE
2022 – 2024

KNOWING ONLINE HATE SPEECH
KNOWLEDGE + AWARENESS = TACKLING HATE

Knowing Online Hate Speech

Despite the Union's effort to fight against online hate speech (OHS), several reports showed an increase in OHS during 2020-21. The current pandemic provided a context for increased scapegoating and stigmatisation, and minority groups are disproportionally targets of hatred discourse. OHS is a persistent threat to the Union's values, and there is a need for more knowledge on its content, detection, and countering, as highlighted in the current Call. Portugal, like other member states, has seen an escalation of hate speech against immigrants, racial/ethnic groups, and LGBTIQ communities.

However, there is no systematised knowledge nor tools designed to detect, monitor, and prevent OHS in these communities. Our project aims at addressing this need, offering a comprehensive, participatory, and culturally sensitive approach to analyse, detect, and counter, direct and indirect OHS in the Portuguese language.

Programme: Citizens, Equality, Rights and Values Programme (CERV)

Topic: CERV-2021-EQUAL

Type of action: CERV Project Grants

Partners: Iscte - Instituto Universitário de Lisboa (PT); INESC ID - Instituto De Engenharia de Sistemas e Computadores, Investigacao e Desenvolvimento Em Lisboa (PT); Associação ILGA Portugal (PT); Casa do Brasil Lisboa (PT); Alto Comissariado para as Migrações I.P. (PT); IST-ID Associação Do Instituto Superior Tecnico Para a Investigação e o Desenvolvimento (PT).
CORDIS | KNOwHATE website

LARGESCALE
2018 – 2021

This project aims to explore the potential of Augmented Reality (AR) devices as new tourist products in regions like Madeira and Lisbon, which heavily rely on tourism for their economies. Currently, these regions have established themselves with ten strategic tourism products, but there is room for improvement through virtual and digital tourism markets. LARGESCALE seeks to investigate the mobility and engagement of tourists and locals by proposing Location-Based Augmented Reality Devices (LARGs) to enhance the exploration of culture, craftsmanship, and points of interest. These LARGs will vary based on time, location, and weather conditions, offering tourists diverse interactions at each point of interest. By leveraging geolocation applications, especially among younger tourists, the project aims to promote physical activity, support local craftsmanship, and boost the local economy in lesser-known areas. The primary objectives include advancing LARG design and development, understanding their data collection capabilities for tourism-related information, and exploring new business models that harness LARGs for tourism enhancement while benefiting creative industries and ICT. This research plan addresses key questions regarding LARG design challenges, their impact on tourism, and the emergence of new business models, all of which can significantly affect the tourism sector's spatial-temporal dynamics.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Instituto Superior Técnico (PT)

About LARGESCALE

MOBEYBOU + OUT
2018 – 2025

Moving Beyond Boundaries – Designing Narrative Learning in the Digital Era & Once Upon a Time: a Kit of Tools for Fostering Children's Development of Multiliteracies, Collaboration Skills, and Intercultural Sensitivity

These projects aim to investigate (i) to which extent the use of a kit of innovative multimodal digital tools for the co-creation of cross-cultural narratives can promote the development of multiliteracies, collaboration skills, and intercultural sensitivity in Early Childhood, (ii) and how teachers/educators can support children in this learning. The tools have been developed in the Mobeybou (MBB) project, a funded R&D multidisciplinary project that aims to fill the gap between current school practices and the skills and tools needed in the 21st century. While MBB developed innovative multimedia and digital tools for cross-cultural narrative creation, OUT aims to investigate its use and potential in Early Childhood Educational settings. The tools comprise a digital manipulative (DM) that uses physical blocks to manipulate the digital content, a story-maker that replicates the DM environment (without the physical blocks), and a set of story apps. DMs are objects with embedded computational properties that allow manipulating digital content. Resulting from these projects it is expected to gather a compilation of understandings and materials on (i) the potential of the tools and their interplay to foster the development of essential 21st-century learning and innovation skills in children, (ii) how children move towards intercultural sensitivity, (iii) and how educators can support children's journey, identifying opportunities and challenges to provide effective and meaningful learning mediations, with renovated teaching practices. In sum, Mobeybou is composed of a set of tools that aim at promoting the development of cognitive, social and language skills within a multicultural framework. On the other hand, OUT investigates how the Mobeybou materials can promote the development of multiliteracies, collaboration skills, and intercultural sensitivity in Early Childhood, and how teachers/educators can support children in this learning.

Funding schemes: Fundação para a Ciência e Tecnologia

Partners: Univerisdade do Minho (PT); Universidade Federal de Santa Catarina (UFSC) (BR); Aalborg University (DK)

Mobeybou website

nexIK
2022 – 2023

Exploring the Human-Water-Energy Nexus in Industrial Kitchens

Industrial kitchens (IKs) use between 5 and 7 times more energy per square meter than other commercial building spaces like office buildings and retail stores. Furthermore, studies indicate that in the EU, UK, and the US, 30% of the energy consumed in industrial kitchens is used in purely commercial establishments, e.g., restaurants and snack bars. Despite the size and ubiquity of this industry, the role of IKs in the global quest for sustainable energy systems still needs to be explored. The nexIK project will address this critical topic, proposing a new methodology to quantify the interactions between Water, Energy, and Food in IKs. Commonly known as the Water-Energy-Food Nexus (WEFN), the developed methodology will provide a holistic approach to assess the impact of IK activity on the consumption of electricity and water.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Associate Laboratory of Robotics and Engineering Systems (LARSyS) (PT); INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa (PT).

nexIK website

REDEMA
2018 – 2021

Energy, in all its forms, is vital for modern and future life. Electricity powers our lives, appearing almost magically in wall outlets. Yet, behind the walls lie vast and complex energy infrastructures, often reliant on environmentally destructive fossil fuels. Our relationship with energy is minimal; electricity remains distant and ethereal. Leveraging Madeira Island's unique context, this research project employs speculative design to explore innovative energy infrastructures and interactions. It aims to rewrite the rules shaping current energy policy and behaviour, such as the dominant radial network system in Europe. By thinking beyond established constraints, this project turns Madeira Island into an energy experimentation hub, offering opportunities for customised energy systems and product interactions to foster a more sustainable and engaged relationship with energy.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Instituto Superior Técnico (PT)

About REDEMA

RELIABLE
2020 – 2023

RELIABLE

Sistema De Aviso Em Tempo Real Do Risco Para Os Ocupantes De Edifícios Durante Eventos Climáticos Extremos

The RELIABLE project aims to create a real-time, high-spatial-resolution public dashboard for assessing health risks to building occupants during extreme weather events like heatwaves and cold waves. This initiative seeks to enhance existing warning systems in two key ways: firstly, by improving risk prediction models through machine learning algorithms applied to new public data sources, and secondly, by increasing the spatial and temporal precision of warnings down to the statistical subsection level (BGRI). This comprehensive effort involves collecting and processing data from various sources, including historical health data, high-resolution weather forecasts, updated census information, and building energy performance certificates. The culmination of these efforts will result in a new indicator model accessible via a public dashboard that provides location-specific alerts to various stakeholders and authorities, significantly improving preparedness and response during extreme weather events.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Associação do Instituto Superior Técnico para a Investigação e o Desenvolvimento (IST-ID) (PT); ADENE - Agência para a Energia, Instituto Nacional de Saúde Dr. Ricardo Jorge (INSARJ) (PT).

RELIABLE website

SSi
2021 - 2023

Sense and Sensibility in Interactivity

To connect younger generations to nature, the SSi project explores novel approaches to promoting environmental literacy and nature connection among children and teenagers. The general materials can enhance our awareness of the natural world. The project proposes a design-led investigation of how storytelling and visual communication for interactive storytelling can promote sensory, experiential, and aesthetic encounters with nature to incite curiosity and willingness to learn about fauna and flora and to engage in their conservation. Set in the Azores, a volcanic archipelago and one of Portugal's most isolated biodiversity hotspots that faces today significative challenges as climatic shifts

alongside human intervention negatively impacts indigenous species, the SSI project will design, test, and evaluate mediated experiences that expose participants to local biomes.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Instituto Superior Técnico (PT); Free University of Bozen-Bolzano (IT); University of Açores (PT); Centre for Ecology, Evolution and Environmental Changes (PT).

SSi website

BASE
2021-2023

Banana Sensing

This project aims to comprehensively evaluate the banana tree's production cycle through sensor-based monitoring, encompassing factors like land location, size, plant count, and cultivation conditions to provide vital data for GESBA's banana product commercialization. Concurrently, continuous sensor monitoring will identify key variables influencing banana growth, enabling improvements in product quality. Additionally, recognizing the need to enhance banana bunch transportation under challenging conditions, the project seeks to automate this process using a cable car system, alleviating the physical burden on farmers. The project's three primary objectives include georeferencing cultivable land, conducting detailed sensor-based analysis of the production cycle, and implementing an automated transport system to optimize banana production and quality while addressing logistical challenges.

Funding scheme: MADEIRA - PRODERAM 2020 - Manutenção Da Atividade Agrícola Em Zonas Desfavorecidas

Partners: GESBA-Empresa de Gestão do Sector da Banana, Lda. (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT); ALTICE Labs (PT); Universidade da Madeira (PT).

About BASE

bioMASK
2022 - 2023

The bioMASK project aims to utilize banana stem by-products from Madeira's abundant banana production to create a biodegradable, washable, and filterable FFP2 mask with a filtration efficiency against 0.1-micron viral particles. This project seeks to address the issue of medical waste and plastic pollution caused by single-use FFP masks. It has three key objectives: 1) Developing biodegradable nano-filter materials using banana and cotton textiles, 2) Applying human-centred design principles to optimize user comfort and functionality of the bioMASK FFP2, and 3) Empowering a local medical products company in Madeira with technical knowledge to produce FFP2 masks and gain recognition within the EU medical products sector.

Funding scheme: ProCiência

Partners: The Biomask Company (PT); Universidade da Madeira (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT).

About bioMASK

FiiHUB
2019 – 2022

Fiware Digital Innovation HUB for Business Acceleration

The general objective of the FiiHUB project is to create and execute the first technological reference centre for the development of the business and entrepreneurship ecosystem of Macaronesia, linked to the development of intelligent services integrated into the technologies of the Internet of the Future and linked to the international network of FIWARE iHub.

Funding Scheme: PO-MAC

Partners: Cabildo Insular de La Palma (ES); Asociación de Empresas Tecnológicas Innovalia (ES); FGULL - Fundación General Universidad de La Laguna (ES); SPEGC - Sociedad de Promoción Económica de Gran Canaria, S.A.U. (ES); M-ITI - Madeira Interactive Technologies Institute (PT); FRCT - Fundo Regional para a Ciência e Tecnologia dos Açores (PT); CCIPD - Câmara do Comércio e Indústria de Ponta Delgada (PT); ACIF - Câmara de Comércio e Indústria da Madeira (PT); Associação NONAGON – Parque de Ciência e Tecnologia de S. Miguel (PT); NOSI-EPE - Núcleo Operacional de Sociedade para Informação, Entidade Pública Empresarial) (CV); Universidade de Cabo Verde (CV)

FiiHUB website

INTERAGUA
2020 – 2022

INTERTAGUA project is mainly focused on the development and improvement of low-cost sensor systems for monitoring biodiversity and the oceans, as well as related human and economic impacts. The project aims to install sensors of animal origin in different mega-fauna of the Macaronesia Islands, from Cape Verde to the Canary Islands, Madeira, and Azores.

Funding scheme: Programa de Cooperación INTERREG V-A España-Portugal MAC (Madeira-Azores-Canarias)

Partners: Plataforma Oceánica de Canarias (PLOCAN) (ES); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT); Direção Regional dos Assuntos do Mar (DRAM) (PT); Instituto das Florestas e Conservação da Natureza, IP-RAM (IFCN) (PT).

INTERAGUA website

INTERWHALE
2021 – 2024

INTERWHALE is a project aiming to reduce costs, pollution, and stress on marine species by developing near real-time technology for off-shore data collection and on-shore interactive exploration. This initiative aligns with UN Sustainable Development Goal 14, focusing on minimizing human impact on marine ecosystems. It comprises three main objectives: SENSE involves utilizing Internet of Things (IoT) devices on sea vessels to gather whale-related data, challenging current IoT sensing capabilities. TRANSMIT utilizes Long-Range (LoRa) radio protocol to transmit collected data from sea vessels to onshore locations in near real-time, advancing aquatic surface telemetry. SIMULATE employs Human-Computer Interaction (HCI) to create immersive on-shore interfaces displaying the collected whale data, with a focus on geodesic domes and Augmented Reality (AR) to study their impact on pro-environmental attitudes.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT).

About INTERWHALE

MTL
2019 – 2022

Marítimo Training Lab

Marítimo SAD relies heavily on the commercial transactions of its professional football players' passes as its primary source of income, making it susceptible to financial risks due to potential injuries that can occur at any time. To mitigate these risks, the organization emphasizes the importance of assessing and monitoring athletes' workloads during training and competitions throughout the season to tailor exercises and prevent overuse injuries. Furthermore, the establishment of the "Marítimo Training Lab" aims to nurture talent using high-quality tools, ultimately improving the club's investment potential in player transfers to other clubs. This approach offers a fresh perspective on resource utilization, providing practical metrics to evaluate the intricate relationships between training, performance, and player development.

Funding scheme: PROCiência 2020

Partners: Marítimo da Madeira - Futebol – SAD (PT); Universidade da Madeira (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT).

MTL website

RRSO
2022 – 2023

Restaurant Review Sentiment Output

In collaboration between the University of Madeira, ARDITI, and Zomato Portugal, this project aims to harness the extensive user opinion database of Zomato Portugal to create a powerful tool. Fuelled by a proprietary algorithm, this tool will accomplish several key objectives: 1) It will detect sentiment trends (both positive and negative) within user reviews; 2) It will pinpoint specific areas for improvement and streamline analysis of user-provided opinions; 3) It will enable macro sentiment analysis across different geographical regions; 4) It will provide valuable insights for Zomato's business development by enhancing the process of restaurant consultation through opinion analysis, making it

faster, more reliable, and precise; 5) It will equip restaurants on the platform with autonomous trend detection and business improvement tools.

Funding scheme: PROCiência

Partners: ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT); University of Madeira (PT); Zomato Portugal (PT).

About RRSO

SAFE
2022 - 2023

Safe Football Entrance

This project aims to create a multifunctional information and communication platform designed to manage football fans' access to stadiums during pandemics while enhancing their real-time match experience. It involves a multidisciplinary collaboration of experts in human-computer interaction, engineering, health sciences, sports sciences, computer sciences, and design to develop a mobile app tailored to the Autonomous Region of Madeira. The app serves a dual purpose: effectively responding to infectious disease outbreaks like COVID-19 and enriching fans' match experiences through real-time data and gamification elements, ultimately improving their understanding of game events.

Funding: PROCiência

Partners: VGPC, Lda. (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT); University of Madeira (PT).

About SAFE

See_App
2021 – 2023

Saúde Escolas - Projeto de Monitorização em Saúde

The project's primary goal is to develop and deploy a mobile health app tailored for the educational community of the Madeira Autonomous Region, with a particular focus on monitoring and responding to infectious disease outbreaks like COVID-19. This app aims to enhance communication between health authorities, such as the Regional Directorate

of Health, and educational institutions. By fostering multidisciplinary collaboration involving experts in public health, computer engineering, design, and education, the project seeks to enhance the existing mobile health app, aligning it with the unique needs of the Madeira education system. Through the implementation of this digital tool, the project strives to maximize educational benefits, improve the well-being and health of students, teachers, and the wider educational community, ultimately contributing to the prevention of infectious disease outbreaks within schools.

Funding scheme: PROCiência

Partners: SH SEE HEALTH, Lda. (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT); University of Madeira (PT).

See App website

SUAVE
2018 - 2019

Ferramentas de software e enquadramento metodológico para intervenções subliminares na saúde e turismo

The SUAVE project aims at designing digital well-being interventions in two main domains: sedentary behaviours and addictive behaviours. The project aims at abstracting the user interface elements that are deemed more effective (in terms of behaviour change for better well-being). This abstraction will lead to the design and development of a new tool for helping designers interested in building behaviour change tools for similar domains. Our strategy is experience-centred, taking insights from positive psychology, behavioural economics, and digital media design.

Funding scheme: ProCiência2020

Partners: WOWSYSTEMS - INFORMÁTICA LDA (PT); ARDITI - Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação (PT).

ARTiVIS
2013 - 2030

Arts, Real-time Video, and Interactivity for Sustainability

ARTiVIS – Arts and Interactivity for Sustainability – proposes to investigate innovative concepts and design methods regarding the use of interactivity for artistic exploration on environmental causes. In this exploratory project and practice-based research, we can play a role as promoters of change in people's behaviour regarding forest protection.

Funding scheme: Other

Partners: Faculty of Fine Arts of the University of Lisbon (PT); altLAb (PT)

ARTiVIS website

CETA
2021 - 2023

Ceibal Tangible

CETA (Ceibal Tangible) is a device that allows students to interact with educational content in a tangible and engaging way. Past research has shown that tangible interaction offers unique opportunities for learning while encouraging children's engagement. The project aims to leverage this potential to improve students' education quality. The project will create games for CETA and a platform for children and educators to design and develop educational activities using real objects and digital tools. Ultimately, the researchers hope that CETA will positively impact the education sector, allowing students to learn in fun and engaging ways while promoting collaborative learning.

Funding scheme: Agencia de Innnovación e Investigación (Uruguay)

Partners: Facultad de Información y Comunicación (UDELAR) (UY); Esculea de Diseño (UDELAR) (UY); Facultad de Ingeñieria (UDELAR) (UY); CICEA (UDELAR) (UY); University of Lisbon (PT).

CETA website

CyFer
2022 - 2023

Cyber Security and Privacy in Fertility Technologies

CyFer examines the cybersecurity, privacy, bias, and trust in female-oriented technologies (FemTech) focusing on apps and IoT devices. The CyFer project looks to build on the research team's previous work that demonstrated how the majority of FemTech IoT

devices and apps start tracking the user right after the app is open and before any user consent, and how new sensors (e.g., on IoT devices) can put users at serious risk, yet the user perception is far less than the actual risks. The CyFer project looks to achieve its aims by (1) evaluating the security and privacy of FemTech, (2) investigating user perception and practice and (3) studying socio-technical bias and trust in data, algorithms, and AI systems.

Funding scheme: PETRAS National Centre of Excellence for IoT Systems Cybersecurity UK

Partners: Royal Holloway University of London (UK); University of Surrey (UK); Umea University (SE); Instituto Superior Técnico (PT); University College London (UK); Lancaster University (UK); Newcastle University (UK); IT University of Copenhagen (DK); KTH Royal Institute of Technology (DE); RISE Research Institute of Sweden (SE); University of Washington (US).

CyFer website

Edu4SD
2022 – 2026

Edu4SD
Sustainability literacy for All

Digital Science Communication for Behaviour Change: students' sustainability literacy

This research will be developed in two phases. In first phase, the knowingness, attitudes, and behaviours (KAP) study about sustainability literacy of 13 to 18 years old students from Myanmar and Portugal, will be investigated with an online questionnaire, to set up a national baseline literacy level. In second phase, KAP survey (pre-assessment) will be performed with 8 to 10 years of schooling students from selected schools in each country. Then, digital science communication content and edutainment games focusing on sustainable consumption will be exposed and then tracked their progress with post-assessment. The main objectives of the study are: To empower students from Myanmar & Portugal to take responsibility for their actions to be sustainable; to enhance students' sustainability literacy and engagement for sustainable future with the support of digital science communication; To evaluate usefulness of digital science communication as a productive tool for a similar approach in remote learning.

Funding scheme: Other

Edu4SD website

GAGE
2021 – 2024

Game Art and Gender Equity

Description: The project intends to portray the evolution of female participation in the Portuguese gaming industry, providing a comprehensive assessment of the gaps and challenges of gender equity in this professional field. GAGE project aims to promote diversity, changing values and behaviours through inclusive practices that encourage the participation of women in this economic and cultural sector. Thus, a critique of games is proposed to mirror a binary society (M/F) where men have a preponderance in the created and developed narratives. After collecting and analysing data from empirical research, we will use animations and games to raise awareness of gender issues in this sector. In Portugal, the digital games industry has been consolidating. Operating companies are estimated to employ between 986 and 1270 workers and generate annual revenues of approximately 31 million euros. In a decade, there has been a significant increase in the offer of specific training in the area. Events related to digital games have emerged: game jams, game development camps and conferences. There is a strong masculinisation of the workforce and a greater presence of men in higher education associated with technological areas, from which most of the human resources in the industry come.

Funding scheme: Other

Partners: Faculty of Fine Arts, University of Lisbon (PT); Department of Arts and Design, University of Évora (PT); University of Porto (PT)

GAGE website

INDCOR
2018 – 2024

Interactive Narrative Design for Complexity Representations

INDCOR aims to create a network of interdisciplinary researchers across European countries to tackle societal issues through interactive digital narratives, such as video games, digital journalism, interactive documentaries, and so on. The aim of this COST action is to build a network for the interdisciplinary study of the potential interactive digital narrative has to addressing complexity as a societal challenge by representing, experiencing and comprehending complex phenomena and thus also address the issue of "fake news".

Programme: COST – European Cooperation in Science and Technology

Funding scheme: Horizon 2020, COST Action

INDCOR website

MIMBCD-UI
2023 - 2026

Multiple Instance Attention Learning for Multimodal Classification and Detection for Breast Cancer Diagnosis

This project addresses the challenging problem of breast cancer image analysis, which is of high clinical relevance. Breast cancer is the most prevalent cancer among women worldwide, and timely detection of potential lesions using medical imaging is crucial for improving survival rates. The objective of this project is to assist radiologists by providing a "second reader opinion" through a multimodal analysis system, focusing on two key tasks: (1) image classification and (2) lesion delineation. While the classification task involves assigning a score to the image, the delineation task is more demanding as it requires the radiologist to outline the lesions. To tackle these challenges, we propose a weakly supervised training approach that leverages only image-level labels. This approach enables simultaneous image classification and lesion delineation, offering a comprehensive solution for assisting radiologists in their diagnostic workflow.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: Hospital Professor Doutor Fernando Fonseca, EPE (PT); Instituto Superior Técnico - University of Lisbon (PT); INESC ID – Instituto de Engenharia de Sistemas e Computadores, Investigação e Desenvolvimento em Lisboa (PT); Associação Amigas do Peito (PT).

MIMBCD-UI website

ProDy
2021 – 2024

Knowledge Drive Profiles Dynamic

Inferring user profiles is a research area of interest with applications in, e.g., recommendation systems, and cognitive rehabilitation. User profiles are being produced mostly from data mining and machine learning approaches, which brings the challenge of

providing explanations about the creation, representation, and dynamics of user profiles. This project aims to suggest a novel knowledge-based approach for user profiling and its dynamics. Thus, we suggest the use of AGM-based belief revision to dynamic of profiles to (a) provide a formal representation of user profiles; (b) describe the changes in the profiles; (c) identify what caused the changes, and (d) return the sequence of changes that will transform an original profile into a target profile. The suggested approach will be tested in real-world applications. In this view, this project will provide a significant contribution to the Explainable Artificial Intelligence area, with applications in, e.g., cognitive rehabilitation, and human-computer interaction.

Funding scheme: Fundação para a Ciência e Tecnologia

Partners: University of Madeira (PT).

ProDy website

Doctoral Graduations

Chiara Ceccarini, "Untangle Sustainable Development Goal 8 through Data Visualization and HCI methods", 2022

Cíntia França, "Growth, maturation and sport-specific motor skills in youth female basketball: impact of ball size and distance to the basket", 2022

Joana Catarina Fernades Vieira, "Human-centred design of clinical auditory alarms", 2022

Liz Sokolowski, "Investigating transparency in collaborative learning and its delivery through Scrum", 2022

Luis Miguel Freitas, "Ultra-low noise, high-frame rate readout design for a 3D-stacked CMOS image sensor", 2022

Paulo Bala, "Leveraging eXtented Reality & Human-Computer Interaction for User Experience in 360º Video", 2022

Raul Masu, "Interactive Sound in Performance Ecologies: Studying Connections among Actors and Artifacts", 2022

Régis Costa de Oliveira, "Interfaces: entre o autorretrato e a performatividade no continuum da realidade", 2022

Terhi Marttila, "Migration as movement - repurposing the voice/interface to explore aspects of human migratory movement through artistic research", 2022.

Yanick Lambert Trindade, "Design de jogos digitais: a narrativa Santomense como elemento estruturante", 2022.

Anna Rebecca Unterholzner, "Gaming, Art, and Emotions: The Challenges of Neuroaesthetics", 2023

José Miguel Santos Ribeiro, "Sensing and Community Crowd Sensing using Passive Wi-Fi", 2023

Maria José Ferreira, "Learn biodiversity using local stories to power up storytelling behaviours in social robots", 2023.

Teresa Veiga Furtado, "Net Art as a Tool for Positive Gender Promotion: Community Multimedia Art with Women in Shelters", 2023

Sandra Olim, ""Augmented Reality Serious Games Towards Introducing and Promoting Chemistry to Preteens", 2023

Francisco Calisto, "Human-Centered Design of Personalized Intelligent Agents in Medical Imaging Diagnosis", 2024

Isabel Neto, "Fostering Inclusion among Mixed-Visual Ability Children through Social Robots", 2024

Marta Ferreira, "Towards an HCI Approach to Communicate and Engage with Climate Change: A Data Humanism Framework", 2024

Jessica Corujeira, "Augmentation of Situation Awareness Through Multimodal Interfaces in Mobile Robot Operation", 2024

Masters Graduations

Ana Andrade, "SeaStory: uma narrativa interativa com recurso a caraterísticas colaborativas", 2022

Ana Chasqueira, "O Design de Interação no Auxílio da Ansiedade Infantil', Ana Chasqueira", 2022

Aníbal João Lopes Chaves, "Interface gráfica para desenvolvimento de redes neuronais convolucionais probabilísticas", 2022

Arturo José Morais Alves, "Sleep analysis through electroencephalogram cyclic alternating pattern a phase detection", 2022

Beatriz Severes Lopes, "Designing Collaborative Technology-based Interventions for Mental Health Management", 2022

Carine Panigaz, "Imagens da vulva na arte feminina contemporânea: contributos para a afirmação social das sexualidades das pessoas com vulvas", 2022

Carlos Filipe Vieira Gomes, "Realidade Aumentada aplicada aos Sistemas de Combate do Soldado", 2022

Carlos Guilherme Paixão Parreira, A influência da multissensoralidade em realidade virtual na experiência da utilização e na usabilidade", 2022

Catarina Alexandra Rebelo Rodrigues, "Digital Tools for Critical Cultural Heritage", 2022

Catarina Santos Correia de Almeida Ribeiro, "Blockchain technologies and small farmers, a Service design approach", 2022

Cristian Tacoronte Rivero, "Diseño E Integración De Un Sistema Para La Detección Y Cuantificación De Lluvia Mediante Radioenlaces Terrenos Y Satelitales Aplicando Técnicas De Machine Learning", 2022

Cristiano França, "Virtual reality environments as a therapeutic technique in rehabilitation of physical and cognitive training in soccer players", 2022

Daniel Filipe Garcia Gonçalves, "Using Biometric Signals and Virtual Reality to Evaluate Movies and/or TV Shows", 2022

Daniela Polo Barbosa, "Connect to disconnect overcoming perceived social isolation through interaction design", 2022.

Darío Javier Díaz Caballero, "Diseño De Un Sistema De Detección De Calima Aplicando Técnicas De Machine Learning Sobre Imágenes De Vidiovigilancia", 2022

David Miguel FIgueiredo Honório, "Voting system for idea evaluation: A web-based system where users can input and vote for ideas", 2022.

Diogo Nobrega, "Battery Energy Storage System to Provide Grid Services", 2022

Duarte Sousa, "The use of interactive communication technologies for collaborative E-mentoring", 2022

Elena Encinas Pérez, "Diseño de un sistema de detección temprana de obstrucción del tubo endotraqueal en pacientes COVID-19 basado en machine learning", 2022

Érica Freitas, "Anonymous Panda: preserving anonymity and expressiveness in online mental health platforms", 2022.

Filipa Alexandra Fitas Vinagre, "Experiências interativas em realidade virtual para o ensino de conceitos complexos", 2022

Francisco Cecílio, "Narrative-based Gamification for Physical Therapy", 2022

Francisco Da Cruz Correia Rocha, "Improving the Learnability of Converged Multi-Level Secure Systems Through an Integrated Onboarding Tutorial", 2022

Francisco Santos Fialho, "Power Share: AI Energy Sensor Interface for Google Home/Assistant", 2022

Frederico Paulo Lourenço Borlido, ""Development of a visual solution for genetic data analysis communication"", 2022

Gianni Tumedei, "Towards a Smart Campus Digital Twin: Promoting Awareness and Sustainability Through Wayfinding and Real-Time Environmental Data", 2022

Hoana Gonçalves, "As camadas de invisível que formam um ponto de vista: um contributo artístico transmedia", 2022

Inês Borges, "Games as Social Spaces: A Tangible Interaction Contribution for Social Anxiety", 2022

Inês Marques, "Development of a Virtual Tour Guide Mobile Application", 2022

Inês Matos, "Render Me": uma abordagem feminista interseccional sobre os estereótipos de género presentes no design de interação", 2022

Isabel Santos Ramos Soares, "Vibrating colours": Crossmodal Correspondences between Haptics, Colour, and Emotions on Inclusive Social Robots", 2022

Joana Resende da Silva, "Arte, drones e hacktivismo: o invisível visto de cima", 2022

Joana Lameiras, "SelfStories: a College Service to Support Mental Well-Being", 2022

Joana Pires "Design e Música Independente Portuguesa: Projeto para Divulgação da Música e dos Músicos", 2022

Joana Nunes Pina Norte, "PELOS TEUS OLHOS: Realidade Virtual na Escola para Promoção da Empatia com Jovens Imigrantes", 2022

João Batista Coelho Freitas, "Aumentando a usabilidade dos sistemas gestores de exposições interativas para curadores de museus", 2022

João David Martins de Freitas, "Splinter Studio - Narrative and game mechanics with context", 2022

Jorge Amantegui, "Forecasting Electricity Consumption in Industrial Kitchens", 2022

José Luís Cardoso Alves, "Instruções de ajuda (coach marks) e a sua validade para séniores em aplicações móveis", 2022

José Roberto Pão Freitas, "Application of a character to interior space: studying the impact on visual perception", 2022.

Louis Rodrigues, "Splinter Studio: modelação 3D englobando o património cultural", 2022

Luís Carlos Gonçalves Freitas, "Extreme weather conditions dashboard", 2022

Luís Barreira, "Supporting Mix-visual Abilities Musical Ensembles", 2022

Mafalda Pereira, "Utilidade, usabilidade e prazer na utilização de uma aplicação para estacionamento remoto", 2022

Manuel Pereira, "TerraSenseTK: a toolkit for remote soil nutrient estimation", 2022

Mariana Martins Sousa, "A Realidade Virtual como forma de promover o património cemiterial: o caso do jazigo dos duques de palmela", 2022

Mariana Ribeiro, "The Art of Storytelling: Its Importance in Video Game Immersion When Paired With Localisation", 2022

Mariya Olena Toma, "Finding Tendencies Of Outfits For Gym Workout Based On The User Emotions: A Study Using Kansei Methodology", 2022

Matteo Nicoli, "Application of the Service Design methodology to the development of a business operating in the food and beverage industry", 2022

Miguel de Sousa Pereira Mendes Azinheira, "A Social Robot to Support Children's Role-play", 2022

Miguel Pacheco Sequeira Dias, "Quantifying the Costs of Conducting Human-Computer Interaction (HCI) research", 2022.

Miguel Pires Coelho, "Visualising the contribution of whales as a natural solution for climate change - Application with visualizations to raise awareness about the importance of whales to the atmosphere", 2022.

Nuno Velosa, "PROCSIM: an energy community simulator to develop and evaluate load balancing schemes", 2022.

Pedro Conceição, "A oleira e o pote. Conversas entre a sombra e a luz inspiradas pela arte de Cabo Verde", 2022

Ricardo Martins, "Data-driven Modeling of Energy Consumption in Industrial Kitchens - Detection of activations and unsupervised classification", 2022

Rita Lopes Silva, "One foot out of the Closet, as relações românticas na geração de 1990-2004, enquanto forma de influência social e política", 2022

Ruben Gandus, "The cold pythia: como colocar questões filosóficas de narração interativa", 2022

Sérgio de Pinho Dória, " Análise do bem-estar social em Lisboa através de indicadores modelados por dados Geoespaciais", 2022

Sofia Alexandra Antunes Silva, "Imprint: Proposta Híbrida Interativa para reconfigurar Meios Impressos", 2022

Sofia Santos, "COMMUTE: como usar o ativismo feminista e o gaming numa reflexão sobre percursos possíveis?", 2022

Tiago de Almeida Gil, "Videojogos como inspiração para desenvolvimento da arquitetura", 2022

Teresa Gubern González, "Análisis De Mapas De Inundabilidad De Áreas De Riesgo Potencial Significativo De Inundación (ARPSIs)", 2022

Tiago Rafael Lucena da Silva, "Preserving Natural and Cultural Heritage with the power of Transient Non-fungible Tokens", 2022

Selected publications

2024

Marta Ferreira, Nuno Nunes, Pedro Ferreira, Henrique Pereira, Valentina Nisi, **Connecting Audiences with Climate Change: Towards Humanised and Action-focused Data Interactions** (2024), *International Journal of Human-Computer Studies (Q1)*, 103341, ISSN 1071-5819, https://doi.org/10.1016/j.ijhcs.2024.103341.

Nicholas B. Torretta, Mariana Pestana, Frederico Duarte, Cristiano Predroso-Roussado, Luisa Metelo Seixas, Valentina Nisi, Nuno Jardim Nunes (2024); **Navigating Problematic Bauhaus Inheritances: Critiques, Implications, and Questions from the Bauhaus of the Seas NEB Lighthouse**. *Design Issues (Q2)* ; 40 (3): 105–117. doi: https://doi.org/10.1162/desi_a_00770

Nunes, N. J. (2024). **The Bauhaus of the Seas: A Manifesto for the New European Bauhaus**. (2024) *Design Issues, (Q2)* 40(2), 90–97.https://doi.org/10.1162/desi_a_00758

Faustine, A., Nunes, N. J., & Pereira, L. (2024). **Efficiency through Simplicity: MLP-based Approach for Net-Load Forecasting with Uncertainty Estimates in Low-Voltage Distribution Networks**. *IEEE Transactions on Power Systems (Q1),* 1–11.https://doi.org/10.1109/TPWRS.2024.3400123

Correia, F., Melo, F.S. and Paiva, A. (2024), **When a Robot Is Your Teammate**. *Top. Cogn. Sci.(Q1)*, 16: 527-553. https://doi.org/10.1111/tops.12634

Câmara Olim, S., Nisi, V. & Romão, T. **Periodic fable discovery: an augmented reality serious game to introduce and motivate young children towards chemistry**. *Multimed Tools Appl (Q1)* **83**, 52593–52619 (2024). https://doi.org/10.1007/s11042-023-17526-9

Laura Santos, Mara Dionisio, and Pedro Campos. 2024. TapeStory: **Exploring the Storytelling Potential of Interactive Tapestries**. *C&C 2024 (A)*,, 686–699. https://doi.org/10.1145/3635636.3656211

Bala, P., Nisi, V., & Nunes, N. J. (2024). **Stories as Boundary Objects: Digital Storytelling with Migrant Communities for Heritage Discourses**. *CSCW 2024 (A)*, 1–32. https://doi.org/10.1145/3641016

Shuhao Ma, John Zimmerman, Sarah E Fox, Valentina Nisi, and Nuno Jardim Nunes. 2024. **"My Sense of Morality Leads to My Suffering, Battling, and Arguing": The Role of Platform Designers in (Un)Deciding Gig Worker Issues**. *DIS 2024 (A)*, 3501–3514. https://doi.org/10.1145/3643834.3660713

Marta Galvão Ferreira and Sherry Hsi. 2024. **Dear Nature: Using data drawings to promote sensemaking in human-nature relations.** *DIS 2024 (A)*,, 1426–1438. https://doi.org/10.1145/3643834.3660732

Marta Galvão Ferreira, Nuno Jardim Nunes, and Valentina Nisi. 2024. **Towards Relatable Climate Change Data: Untangling Tensions in Engaging with a Hyperobject.** *DIS 2024 (A)*, 3029–3045. https://doi.org/10.1145/3643834.3661606

Filipa Correia, Isabel Neto, Soraia Paulo, Patricia Piedade, Hadas Erel, Ana Paiva, and Hugo Nicolau. 2024. **The Effects of Observing Robotic Ostracism on Children's Prosociality and Basic Needs.** *HRI 2024 (A)*, 157–166. https://doi.org/10.1145/3610977.3634997

Isabel Neto, Yuhan Hu, Filipa Correia, Filipa Rocha, João Nogueira, Katharina Buckmayer, Guy Hoffman, Hugo Nicolau, and Ana Paiva. 2024. **"I'm Not Touching You. It's The Robot!": Inclusion Through A Touch-Based Robot Among Mixed-Visual Ability Children.** *HRI 2023 (A)*, 511–521. https://doi.org/10.1145/3610977.3634992

Isabel Neto, Yuhan Hu, Filipa Correia, Filipa Rocha, Guy Hoffman, Hugo Nicolau, and Ana Paiva (2024), **Conveying Emotions through Shape-changing to Children with and without Visual Impairment.** *CHI 2024 (A*)*, 1–16. https://doi.org/10.1145/3613904.3642525

Ana Cristina Pires, Filipa Rocha, Tiago Guerreiro, and Hugo Nicolau (2024) **Inclusive Computational Thinking in Public Schools: A Case Study from Lisbon.** *Interactions (Q2)* 31 (4). https://doi.org/10.1145/3665992

Eleonora Mencarini, Valentina Nisi, Christina Bremer, Chiara Leonardi, Nuno Jardim Nunes, Jen Liu, and Robert Soden (2024), **Imagining Sustainable Futures: Expanding the Discussion on Sustainable HCI.** *Interactions (Q2)* 31 (2). https://doi.org/10.1145/3643493

Andrade, V., Morais, H., & Pereira, L. **(2024). Industrial kitchen appliance consumption forecasting: Hour-ahead and day-ahead perspectives with post-processing improvements.** *Computers and Electrical Engineering (Q1)*, *116*, 109145. https://doi.org/10.1016/j.compeleceng.2024.109145

Gomes, E., Pereira, L., Esteves, A., & Morais, H. **(2024). Metaheuristic Optimization Methods in Energy Community Scheduling: A Benchmark Study.** *Energies (Q1)*, 17(12), Article 12. https://doi.org/10.3390/en171229682023

2023

Bala, P., Sanches, P., Cesário, V., Leão, S., Rodrigues, C., Nunes, N. J., & Nisi, V. (**2023**). **Towards Critical Heritage in the wild: Analysing Discomfort through Collaborative Autoethnography**. *CHI 2023 (A*)*, 1–19. https://doi.org/10.1145/3544548.3581274

Calisto, F. M., Fernandes, J., Morais, M., Santiago, C., Abrantes, J. M., Nunes, N., & Nascimento, J. C. (**2023**). **Assertiveness-based Agent Communication for a Personalized Medicine on Medical Imaging Diagnosis**. *CHI 2023 (A*)*, 1–20. https://doi.org/10.1145/3544548.3580682

Rocha, F., Correia, F., Neto, I., Pires, A. C., Guerreiro, J., Guerreiro, T., & Nicolau, H. (**2023**). **Coding Together: On Co-located and Remote Collaboration between Children with Mixed-Visual Abilities**. *CHI 2023 (A*)*, 1–14. https://doi.org/10.1145/3544548.3581261

Wang, Z., He, R., Rebelo, F., Vilar, E., & Noriega, P. (**2023**). **Human interaction with virtual reality: Investigating pre-evacuation efficiency in building emergency**. *VR 2023 (A*)*, *27*(2), 1039–1050. https://doi.org/10.1007/s10055-022-00710-x

Tavares, A., Silva, J. L., & Ventura, R. (**2023**). **Physiologically Attentive User Interface for Improved Robot Teleoperation**. *IUI 2023 (A)*, 776–789. https://doi.org/10.1145/3581641.3584084

Correia, F., Campos, J., Melo, F. S., & Paiva, A. (**2023**). **Robotic Gaze Responsiveness in Multiparty Teamwork**. *International Journal of Social Robotics (Q1)*, *15*(1), 27–36. https://doi.org/10.1007/s12369-022-00955-1

Cesário, V., Freitas, J., & Campos, P. (**2023**). **Empowering cultural heritage professionals: Designing interactive exhibitions with authoring tools**. *Museum Management and Curatorship (Q1)*, 1–15. https://doi.org/10.1080/09647775.2023.2209896

Mendonça, F., Mostafa, S. S., Gupta, A., Arnardottir, E. S., Leppänen, T., Morgado-Dias, F., & Ravelo-García, A. G. (**2023**). **A-phase index: An alternative view for sleep stability analysis based on automatic detection of the A-phases from the cyclic alternating pattern**. *Sleep (Q1)*, *46*(1), zsac217. https://doi.org/10.1093/sleep/zsac217

Luz, R., Silva, J. L., & Ventura, R. (**2023**). **Enhanced Teleoperation Interfaces for Multi-Second Latency Conditions: System Design and Evaluation**. *IEEE Access (Q1)*, *11*, 10935–10953. https://doi.org/10.1109/ACCESS.2023.3240307

Gouveia, É. R., Campos, P., França, C. S., Rodrigues, L. M., Martins, F., França, C., Gonçalves, F., Teixeira, F., Ihle, A., & Gouveia, B. R. (**2023**). **Virtual Reality Gaming in Rehabilitation after Musculoskeletal Injury—User Experience Pilot Study**. *Applied Sciences (Q1)*, *13*(4), 2523. https://doi.org/10.3390/app13042523

Nisi, V., Bala, P., Bostock, H., Cesário, V., & Nunes, N. J. (**2023**). **"Before gentrification, we claim for habitation": Eliciting Values and Assets through Cultural Heritage Storytelling**. *DIS'2023 (A)*, 2423–2436. https://doi.org/10.1145/3563657.3596124

Pires, A. C., Abreu, L. V., Rocha, F., Simão, H., Guerreiro, J., Nicolau, H., & Guerreiro, T. (**2023**). **TACTOPI: Exploring Play with an Inclusive Multisensory Environment for**

Children with Mixed-Visual Abilities. *IDC 2023 (B)*, 411–422. https://doi.org/10.1145/3585088.3589389

Rato, D., Correia, F., Pereira, A., & Prada, R. (2023). **Robots in Games**. *International Journal of Social Robotics (Q1)*, *15*(1), 37–57. https://doi.org/10.1007/s12369-022-00944-4

Rodrigues, P., Nicolau, F., Norte, M., Zorzal, E., Botelho, J., Machado, V., Proença, L., Alves, R., Zagalo, C., Lopes, D. S., & Mendes, J. J. (2023). **Preclinical dental students self-assessment of an improved operative dentistry virtual reality simulator with haptic feedback**. *Scientific Reports (Q1)*, *13*(1), 2823. https://doi.org/10.1038/s41598-023-29537-5

Krutnik, M., Pedro, A., Yadack, V. M., Morais, H., & Pereira, L. (2023). **On the Potential of Tertiary Espresso Machines to Provide Frequency Containment Reserves Services**. *IEEE Transactions on Consumer Electronics (Q1)*, 1–1, https://doi.org/10.1109/TCE.2023.3323823

Pedro, A., Krutnik, M., Yadack, V. M., Pereira, L., & Morais, H. (2023). **Opportunities and challenges for small-scale flexibility in European electricity markets**. *Utilities Policy, (Q1) 80*, 101477. https://doi.org/10.1016/j.jup.2022.101477

Góis, J., & Pereira, L. (2023). **ANR: A New Metric to Quantify the Appliance to Noise Ratio in Load Disaggregation Datasets**. *IEEE Transactions on Instrumentation and Measurement (Q1)*, *72*, 1–8. https://doi.org/10.1109/TIM.2023.3311066

2022

Simeone, A. L., Cools, R., Depuydt, S., Gomes, J. M., Goris, P., Grocott, J., Esteves, A., & Gerling, K. (2022). **Immersive Speculative Enactments: Bringing Future Scenarios and Technology to Life Using Virtual Reality**. *CHI 2022 (A*)*, 1–20. https://doi.org/10.1145/3491102.3517492

Scuri, S., Ferreira, M., Jardim Nunes, N., Nisi, V., & Mulligan, C. (2022). **Hitting the Triple Bottom Line: Widening the HCI Approach to Sustainability**. *CHI 2022 (A*)*, 1–19. https://doi.org/10.1145/3491102.3517518

Rodrigues, A., Nicolau, H., Santos, A., Branco, D., Rainey, J., Verweij, D., Smeddinck, J. D., Montague, K., & Guerreiro, T. (2022). **Investigating the Tradeoffs of Everyday Text-Entry Collection Methods**. *CHI 2022 (A*)*, 1–15. https://doi.org/10.1145/3491102.3501908

Esteves, A., Bouquet, E., Pfeuffer, K., & Alt, F. (2022). **One-handed Input for Mobile Devices via Motion Matching and Orbits Controls**. *IMUT (A*)*, *6*(2), 1–24. https://doi.org/10.1145/3534624

Correia, N. N., Masu, R., Primett, W., Jürgens, S., Feitsch, J., & Plácido Da Silva, H. (2022). **Designing Interactive Visuals for Dance from Body Maps: Machine Learning and**

Composite Animation Approaches. *DIS 2022 (A)*, 204–216. https://doi.org/10.1145/3532106.3533467

Calisto, F. M., Nunes, N., & Nascimento, J. C. (**2022**). **Modeling adoption of intelligent agents in medical imaging**. *International Journal of Human-Computer Studies (Q1)*, *168*, 102922. https://doi.org/10.1016/j.ijhcs.2022.102922

Calisto, F. M., Santiago, C., Nunes, N., & Nascimento, J. C. (**2022**). **BreastScreening-AI: Evaluating medical intelligent agents for human-AI interactions**. *Artificial Intelligence in Medicine (Q1)*, *127*, 102285. https://doi.org/10.1016/j.artmed.2022.102285

Ribeiro, M., Nunes, N., Nisi, V., & Schöning, J. (**2022**). **Passive Wi-Fi monitoring in the wild: A long-term study across multiple location typologies**. *Personal and Ubiquitous Computing (Q2)*, *26*(3), 505–519. https://doi.org/10.1007/s00779-020-01441-z

Gupta, A., Ravelo-Garcia, A. G., & Dias, F. M. (**2022**). **A Motion and Illumination Resistant Non-Contact Method Using Undercomplete Independent Component Analysis and Levenberg-Marquardt Algorithm**. *IEEE Journal of Biomedical and Health Informatics (Q1)*, *26*(10), 4837–4848. https://doi.org/10.1109/JBHI.2022.3144677

2020-21

Cesário, V., Petrelli, D., & Nisi, V. (2020). **Teenage Visitor Experience: Classification of Behavioral Dynamics in Museums. *CHI 2020 (A*)*, 1–13.** https://doi.org/10.1145/3313831.3376334

Bala, P., Oakley, I., Nisi, V., & Nunes, N. J. (**2021**). **Dynamic Field of View Restriction in 360° Video: Aligning Optical Flow and Visual SLAM to Mitigate VIMS**. *CHI 2021 (A*)*, 1–18. https://doi.org/10.1145/3411764.3445499

Scott, K. M., Ashby, S., & Hanna, J. (2020). **"Human, All Too Human": NOAA Weather Radio and the Emotional Impact of Synthetic Voices**. *CHI 2021 (A*)*, 1–9. https://doi.org/10.1145/3313831.3376338

Prandi, C., Nisi, V., Ribeiro, M., & Nunes, N. (**2021**). **Sensing and making sense of tourism flows and urban data to foster sustainability awareness: A real-world experience**. *Journal of Big Data (Q1)*, *8*(1), 51. https://doi.org/10.1186/s40537-021-00442-w

Ferreira, M., Coelho, M., Nisi, V., & Jardim Nunes, N. (**2021**). **Climate Change Communication in HCI: A Visual Analysis of the Past Decade**. *C&C 2021 (A)*, 1–16. https://doi.org/10.1145/3450741.3466774

Freitas, J. R. S., Velosa, V. H. S., Abreu, L. T. N., Jardim, R. L., Santos, J. A. V., Peres, B., & Campos, P. F. (**2021**). **Virtual Reality Exposure Treatment in Phobias: A Systematic Review**. *Psychiatric Quarterly (Q1)*, *92*(4), 1685–1710. https://doi.org/10.1007/s11126-021-09935-6

Gouveia, É. R., Smailagic, A., Ihle, A., Marques, A., Gouveia, B. R., Cameirão, M., Sousa, H., Kliegel, M., & Siewiorek, D. (2021). **The Efficacy of a Multicomponent Functional Fitness Program Based on Exergaming on Cognitive Functioning of Healthy Older Adults: A Randomized Controlled Trial.** *Journal of Aging and Physical Activity (Q1)*, *29*(4), 586–594. https://doi.org/10.1123/japa.2020-0083

Castro, D., Rigby, J. M., Cabral, D., & Nisi, V. (2021). **The binge-watcher's journey: Investigating motivations, contexts, and affective states surrounding Netflix viewing.** *Convergence (Q1)*, *27*(1), 3–20. https://doi.org/10.1177/1354856519890856

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