Center of Technology and Systems

NEWSLETTER

November 2025

A Moment of Reflection

As we approach the end of the current CTS Coordination mandate (2022–2025), this is a fitting moment to reflect on our recent achievements and to look ahead to the challenges before us.
Over the past four years, we have accomplished a great deal:

- **Outstanding evaluation result**, with an **"EXCELLENT"** rating awarded by FCT-IP.
- **Continued success in attracting competitive funding**, despite increasingly difficult conditions.
- **Support for a remarkable number of high-quality PhD theses and MSc dissertations**, contributing to the growth of our research community.
- **A sustained high output of scientific publications**, many in top-tier venues.
- **Strong international engagement**, including leadership roles in scientific committees and societies, the organization of numerous scientific events, and the delivery of many invited keynote talks.
- **Recognition of individual excellence**, with several CTS members receiving awards and appearing in prestigious global rankings (e.g., *Stanford–Elsevier Top 2%*, *World's Best Scientists*).
- **Many other accomplishments** that reflect the commitment and quality of our collective work.

We can all be proud of these achievements and grateful for the effort that made them possible.

Looking Ahead: Challenges for the Next Period
As we enter a new cycle, we must be prepared to face several emerging challenges:

- **Navigating an increasingly turbulent local, national and international environment.** It is vital that we maintain a **clear vision** of excellence in advanced and cognitive cyber-physical systems.
- **Safeguarding ethical standards in research**, ensuring we steer clear of harmful practices that are becoming more common in academia. This includes:
  - Making responsible use of AI and combating fraudulent publications or fake research.
  - Avoiding "gray venues"—journals or conferences of dubious quality.
  - Rejecting unethical authorship practices such as ghost authorship or "publication clubs."
  - Promoting transparency and sound management of research data.
- **Defining concrete metrics for societal impact.** While scientific productivity is reasonably captured by established indicators, societal impact remains difficult to measure. We must work to identify objective, meaningful metrics in this area.
- **Strengthening internal collaboration**, particularly by:
  - Better integrating the many new researchers who have recently joined CTS.
  - Encouraging synergies over competition and practicing a more collaborative spirit by involving colleagues more broadly in projects, events, and initiatives.

Together, we can achieve far more than we could individually!

Luis Camarinha-Matos, Director of CTS

Editorial

Welcome to the Fall 2025 edition of the CTS Newsletter. Over the past few months, we've seen a lot of growth in our research and collaborations. This issue highlights the hard work and teamwork that continues to drive CTS success.

Our researchers continue to earn significant awards, with Hugo Serra, João Pedro Oliveira, and João Goes receiving the prestigious Best Paper Award at MIXDES 2025 for their pioneering work in energy-efficient Integrated Circuits. João Goes has been awarded 2024 Best Associate Editor of IEEE Transactions on Circuits and Systems I (TCAS-I). Strengthening our global standing, several CTS researchers have been listed in the Stanford-Elsevier World Top 2% most cited scientists, and prominent members have been highlighted in Research.com's World's Best Scientists 2025 rankings. Such distinctions are a powerful validation of our profound influence on the scientific landscape. We also extend a heartfelt tribute to Prof. Adolfo Steiger-Garção, the visionary founder of CTS.

Innovation has been a cornerstone of our summer. From new projects like "FRONT," pushing the boundaries of high-speed data transmission in advanced ICs, to the FCT-CMU Portugal Visiting Professor Grant driving advancements in 6G wireless communication, CTS is at the forefront of technological progress. CTS commitment to sustainability is evident in the new "Cir4Fun" and "3D-Circular" projects, which are shaping circular design strategies and digital transformation. We also witnessed PhD defences, including Alina Petukhova's "LLM-Based Clustering of Text Documents" and Miguel Alexandre Gonçalves Lourenço's thesis on wildfire management, showcasing the diverse and impactful research being conducted. The highly successful and sold-out Seasonal School on Advanced Analog and Mixed-Signal IC Design reflects CTS dedication shaping the next generation of engineers.

Collaboration and engagement remain central to our mission. The 2nd Annual Meeting of the Intelligent Systems Associate Laboratory (LASI 2025) brought together leading AI and Data Science researchers, fostering critical discussions on data management, ethics, and responsibility in AI—a theme further explored by Prof. Camarinha-Matos in his keynote at the 2025 International Symposium on Intelligent Manufacturing Systems. Co-sponsored PRO-VE 2025, focusing on Hybrid Human-AI Collaborative Networks, exemplified our role in defining future human-technology interaction, together with Antonio Pegado's Student Best Paper Award. CTS played a pivotal role in organizing the EUCAS 2025 European Superconductivity Conference, co-chaired by Anabela Pronto and João Murta-Pina, which set new records and highlighted the transformative potential of superconductivity. Our outreach efforts, like the CAPTURE project's participation in Pavilhão do Conhecimento's anniversary, continue to inspire young minds and connect our research with society.

As we move forward, the spirit of inquiry, the pursuit of excellence, and the power of collaboration will continue to drive us. We hope you enjoy reading about these achievements and the vibrant activities that define CTS community.

João Martins, CTS Communication Officer

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LASI – NEW RESEARCHER ! IEEE Portugal

Under the program CEEC-LASI, CTS hired a new researcher - Thais Baldissera. Through a competitive Call, funded by FCT-IP, LASI got 3 researcher positions, one of which was allocated to CTS. As required by LASI, this position focus on "Collaborative Systems for electronic governance and integrated services".
LASI is an Associated Lab on Intelligent Systems, composed of 13 research centers, including CTS.

4 Sep 2025 – signing the contract

IEEE Education Society Portugal Chapter

Funded by FCT

FRONT – Fully Integrated Multiphase Clock Generator and RF Front End for Frequency Interleaved-ADCs in SerDes 224 G Applications (Exploratory Research Project, call 2025 - 60k€)

Nowadays, the transmission of information between chips through a channel is crucial, particularly for short-distance connections such as chip-to-chip interconnects. This is especially important in modern applications like machine learning, cloud computing, and artificial intelligence. These systems must ensure very high data-rate transfer between two points, without any loss of information and minimizing signal integrity issues.
The electronic system Serializer/Deserializer (SerDes) is used to transmit data information from one point to another, with few pins and longer distances than parallel communication. This system is composed of the following elements: the Transmitter; the Receiver; and the Channel responsible for creating the physical link between these two elements, which can be off-chip.
New and very efficient ADCs must be developed to be used in future high bandwidth SerDes transceiver speed. Recently 64x Time-Interlaved ADCs have been proposed to address this challenging data rate. In this project we propose to develop an innovative Front End and Clock Generator for Frequency Interleaved-ADCs, to be included in a power-efficient 224Gb/s-PAM-4 ADC-based receiver, in a 16nm FinFET CMOS process, fulfilling the requirements of next generation ethernet for chip-to-module applications.
The project involves nanoelectronics IC design (finFET 16nm), RF circuits, and mixed signal design and integration. Hence, this proposal seeks interdisciplinary integration of these different areas. Also covered, will be advanced device modelling, circuit simulation and optimization, and physics issues associated with designing in advanced nanoscale CMOS technology. Although the final demonstrator of the project is for Serdes the proposed innovation has a wider range of applications in high frequency communication systems (5G and 6G) with >100Gs/s data rate.
This project is led by Luis Oliveira and has the collaboration of CTS members: João Goes, Nuno Paulino and João Pedro Oliveira.

FCT–CMU Portugal Visiting Professor Grant (2025): Massive MIMO & THz for 6G Wireless

Prof. D. N. K. Jayakody, member of CTS, has been selected for a 2025 FCT–CMU Portugal Visiting Professor grant to advance 6G cellular systems, a FCT instrument. The project focuses on advanced modulation and massive MIMO techniques for high-capacity THz links, addressing channel/beamforming challenges and hardware constraints. The program includes access to a state-of-the-art 5G/6G experimental lab and joint research with Carnegie Mellon University faculty and doctoral researchers.

- **Duration:** 12 months, including a **2-month in-person residency** at Carnegie Mellon University (Pittsburgh, USA).
- **Focus Areas:** Waveform and modulation design for THz channels under hardware non-idealities (phase noise, PA back-off). Scalable **massive MIMO** architectures (hybrid/digital beamforming) for sub-THz/THz bands. Channel modeling and link-adaptation strategies tailored to high-path-loss, blockage-prone THz links. Lab-grade prototyping and measurement campaigns using **advanced 5G testbeds** and channel emulators.
- Hands-on work with high-end RF front-ends, phased arrays, channel sounders, and SDR-based 5G stacks; exposure to CMU's systems integration workflows and reproducible research pipelines.
- **Joint supervision** of a PhD candidate under the CMU-Portugal framework, fostering long-term transatlantic collaboration and student mobility.
- **Outputs & Impact:**
  - 1–2 top-tier journal submissions (e.g., IEEE TWC/TAP/JSAC) and 1 flagship conference paper (e.g., ICC/Globecom).
  - A **demonstrator** showcasing high-throughput THz MIMO link with adaptive modulation/beam management.
  - A **joint seminar series** (Portugal ↔ CMU) and a short, **industry-facing white paper**

Funded by EC

IR4FUN - Advancing European Industrial Sustainability and Competitiveness through Circular Design Strategies, Digital Product Passports, and Sustainable Product-Service Systems in the Furniture Sector

https://cir4fun.eu/

The European furniture industry is transitioning towards sustainability and circular practices, driven by the need for regulatory alignment and standardisation. The EU-funded Cir4Fun project will enhance furniture sustainability by introducing digital product passports (DPP) and promoting eco-labelling. It will create a circular economy roadmap, develop eco-design guidelines and establish

innovative business models. The project will also devise new methodologies for assessing maintenance, reparability, refurbishment, remanufacturing and recyclability. These insights will be integrated into an interoperable furniture assessment system (FAS), featuring a sustainable index system, developed with the support of life cycle assessment, life cycle costing and social life cycle assessment under a Furniture Data Space. Cir4Fun will actively engage stakeholders to foster sustainable behaviours, advancing the industry's shift to circularity.
José Ferreira

3D-Circular - Digital Deep tech Driven Circular Economy
https://3d-circular.eu/

3D-CIRCULAR aims to advance higher education in alignment with the EU Green Deal and Digital Europe strategies by embedding digital services, platforms, and IT competencies into modern educational ecosystems. The project bridges the gap between academic excellence and industry demands, ensuring that curricula remain relevant, future proof, and innovation driven. By promoting sustainability, technological advancement, and personal development, 3D-CIRCULAR fosters a culture of lifelong learning and empowers individuals through reskilling and upskilling opportunities strengthening Europe's capacity for green and digital transformation
José Ferreira

EVENTS

CTS Chairs Flagship European Superconductivity Conference

The 17th edition of the **European Conference on Applied Superconductivity (EUCAS)**, co-chaired by **João Murta-Pina** and **Anabela Pronto**, CTS members, was held this September in Porto, bringing together the global community engaged in the advancement of superconducting technologies.
Organised under the auspices of the **European Society for Applied Superconductivity** (ESAS), EUCAS stands as the leading European event in the field and one of the two flagship international conferences dedicated to applied superconductivity.

EUCAS edition of 2025 set a new record, with over 1,100 registrations, reflecting the increasing momentum of superconductivity as a key enabler of transformative technologies.
Superconductivity is a remarkable state of matter in which certain materials, when cooled below a critical temperature (typically between –270 °C and –196 °C), lose electrical resistivity. As a result, they can carry extremely high electrical currents with zero or residual energy losses. Combined with the ability to sustain exceptionally strong magnetic fields, these properties enable technologies with profound societal impact, including magnetic resonance imaging, nuclear fusion, quantum computing, and ultra-efficient power transmission systems.

The conference programme covered the full spectrum of the field — from **materials** science to **large-scale** applications, and **electronics**. In addition to regular sessions and poster presentations, EUCAS 2025 included plenary lectures delivered by some of the

most prominent scientists in the world. The programme also featured short courses aimed at early-career researchers, as well as special sessions dedicated to emerging topics such as room-temperature superconductivity, and focus sessions on themes such as the requirements for integrating these technologies, capable of revolutionising the energy sector, into practical, real-world applications.

This year also placed a special spotlight on outreach. One of the highlights was the public event "Superconductivity for a Sustainable Future: The Promise of High-Temperature Superconductors", streamed live on the NOVA School of Science and Technology YouTube channel. The session brought together experts to discuss the strategic vision, practical experience, and industrial readiness of HTS for the energy transition, and included a roundtable with stakeholders like the EDP R&D Centre, moderated by **Prof. João Martins**, from CTS-UNINOVA.

A special highlight of the conference was the nomination and recognition of Dr. Akiyasu Yamamoto (Tokyo University of Agriculture and Technology), who received the ESAS Award for Excellence for his pioneering work applying **machine learning to the design of practical superconducting materials**. This marks a significant advancement in a field where artificial intelligence is gaining increasing relevance — from fundamental research, such as materials prediction and discovery, to applied superconductivity, including device optimisation and condition monitoring.

Hosting this edition of EUCAS represented a significant milestone for CTS-UNINOVA. The successful organisation of the event reflects the consistent path the centre has pursued in recent years. The recognition received from the international scientific community highlights the growing impact and relevance of the research developed at CTS-UNINOVA in the field of applied superconductivity.

Seasonal School

The Seasonal School Advanced Analog and Mixed-Signal (AMS) IC Design 2025 (https://semiconductorsacademy.pt/?page_id=890), organized by CTS-UNINOVA, took place with great success and exceeded expectations. It received over 300 international applications, of which 80 were selected due to logistical constraints.

This intensive program began on June 12 at NOVA FCT (UNINOVA & SANTANDER multi-purpose building), lasting 7 weeks (over 250 hours, mostly hands-on), and was primarily aimed at Master's final-year students, PhD candidates, and young engineering professionals with a strong background in electronics and microelectronics.

This advanced training was completely free of charge, co-funded by UNINOVA through the Portuguese Semiconductor Competence Centre (POEMS), the European Space Agency (ESA), NOVA FCT, the IEEE Portugal Section, FCT, and the EU. It provided an immersive experience focused on cutting-edge CMOS technologies (N28 FD-SOI, N22 Bulk, N16 FinFET), featuring a panel of 6 guest speakers and 17 instructors from both academia and industry (RENESAS, POWERTOOLS, PETsys, SYNOPSYS, AURASEMI, MPS, and Start2Scale).

CAPTURE Project Featured at "Pavilhão do Conhecimento"'s 26th Anniversary

The CAPTURE project participated in the 26th anniversary celebrations of Pavilhão do Conhecimento, on the 25th july, in a science communication initiative aimed at all ages, with a significant participation of school children from primary and middle school levels. The CAPTURE project, led by Prof. Bruno Guerreiro from CTS-UNINOVA and NOVA FCT, aims to develop innovative technologies for shuttle drones capable of performing launch and capture maneuvers of other vehicles or objects, in both cooperative and non-cooperative scenarios. This research addresses scientific and technological challenges in the areas of trajectory planning, hybrid and distributed control, and cooperative motion estimation.

During the event, the CAPTURE team presented videos showcasing the project's main results and organized a hands-on activity specially designed for young audiences. Participants had the opportunity to control small remote-controlled cars and a small drone, simulating the capture challenge that lies at the heart of the research. The activity also included adapted fishing rods, allowing young visitors to explore different capture strategies in a playful and interactive manner.

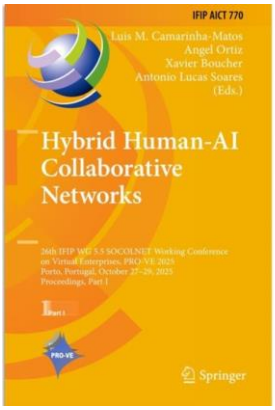
The initiative involved the participation of PhD and MSc students from CTS-UNINOVA/NOVA FCT) and ISR-Lisbon/IST, who engaged with young visitors and shared their enthusiasm for robotics and autonomous systems. The activity was very well received by the audience, providing a learning experience through hands-on experimentation.

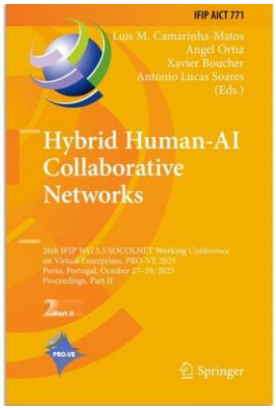
This participation reinforces CTS and its team's commitment to science communication and bringing cutting-edge research closer to society at large.

For more information about the CAPTURE project, visit: http://capture.isr.tecnico.ulisboa.pt

PRO-VE 2025

https://pro-ve2025.inesctec.pt/





Co-sponsored by CTS, the 26th edition of PRO-VE – IFIP/SOCOLNET Working Conference on Virtual Enterprises, was held in Porto, Portugal, from 27 to 29 Oct 2025.

It was a great event devoted to discussing the exciting topic of **Hybrid Human-AI Collaborative Networks**.

In recent years, Artificial Intelligence (AI) has become a highly prominent topic, with significant investments across all continents. Advances in generative AI have led to widespread excitement and, at times, inflated expectations. Many long-term AI experts warn about the risks of these excessive expectations, and a recent MIT report highlights a 95% failure rate in AI initiatives. Nevertheless, the number of impressive AI applications continues to grow. AI is here to stay, and our role is to make it better and more valuable to society.

As AI transitions from being a tool to becoming a true teammate, the PRO-VE community can play a crucial role in the design, support, and governance of collaboration between humans and AI agents. This was the central and inspiring theme of PRO-VE 2025.

So far, most human-AI collaboration has focused on 1-to-1 interactions. However, true hybrid collaborative networks, involving multiple humans and multiple AI agents, remain limited. Designing such networks requires a multidisciplinary approach, where PRO-VE community can play a relevant and impactful role.

Invited Keynote at the
2025 International Symposium on Intelligent Manufacturing Systems

Wuhan, China – 15 Oct 2025

Prof. Camarinha-Matos, director of CTS, delivered an invited plenary keynote on "**Collaborative Networks and Smart Manufacturing**" at this prestigious event focused on **Advances and Application Prospects in Industrial AI**, which brought together over 500 participants from both industry and academia.

In this talk, he highlighted the importance of adopting a collaborative networks perspective to fully realize the promises of intelligent manufacturing. He illustrated the **transformative potential** of this approach across all dimensions of **Industry 4.0**, including both the **manufacturing system perspective** (vertical integration, horizontal integration, and acceleration of manufacturing) and the **product/service perspective** (end-to-end engineering, smart products and digitalization, and innovative business models).

The presentation also addressed how collaborative networks can contribute to the emerging priorities of **Industry 5**.0, namely Sustainability, Resilience and Antifragility, and the Human- and AI-centric paradigm. In particular, I discussed collaborative robotics, robot-robot and machine-machine collaboration, and **hybrid human–AI collaborative networks** involving multiple humans, AI agents, and robots/machines.

To broaden the perspective, he presented examples from other domains, including *electrical energy* (the rise of the collaborative energy ecosystem concept) and *elderly care* (ecosystems for personalized and evolving care services, and human–AI collaboration through companion robots and LLM/SLM-based agents).

The entire event was supported by **AI-powered real-time English–Chinese translation**.

LASI 2025

2nd Annual Meeting of the Intelligent Systems Associate Laboratory (LASI), an event designed to foster collaboration among leading researchers in Artificial Intelligence and Data Science across Portugal and within the LASI community.
The event took place on 17 Oct 2025, at Faculty of Medicine, University of Coimbra.
CTS, as member of LASI, was involved in the Organizing Committee and in the Program Committee.
Prof. Camarinha-Matos participated in the round table on "*Data Management, Ethics, and Responsibility on AI*".

Guimarães was chosen to host the Portuguese hub of the European Confederation of Artificial Intelligence Research Laboratories (CAIRNE), https://cairne.eu/, a network that brings together more than 27,000 members from 487 institutions across 39 countries.

The new hub aims to strengthen Portugal's role in the international Artificial Intelligence (AI) landscape and to boost research, knowledge exchange, investment, and the ethical development of new technologies.

"CAIRNE Guimarães" is coordinated by Paulo Novais, full professor and head of the Associated Laboratory on Intelligent Systems (LASI) — the largest in the country, comprising more than 500 scientists from 13 R&D centers across seven academic institutions.

The hub was presented during the 2nd Annual Meeting of LASI, held in Coimbra, and brings together a significant portion of the national artificial intelligence community. It involves research units from the universities of Nova de Lisboa (CTS, UNIDEMI), Coimbra (CIBIT, CISUC), Aveiro (IEETA, TEMA), Porto (LIACC, CMUP), and Minho (ALGORITMI, IPC), as well as from the polytechnics of Porto (GECAD, CISTER) and Cávado and Ave (2Ai). The network also includes other Portuguese laboratories and research centers.

During this meeting we had the opportunity to reflect on the pressing challenges of **data management**, **ethics**, **and responsibility**, both from the perspective of **designing and developing AI systems** and from that of **using** them responsibly.

In today's landscape, we face the tension between u**pholding our values and respecting fundamental rights** on one hand, and **remaining competitive and innovative** on the other, particularly when other key players may operate under different ethical or regulatory frameworks. This raises several important questions:

- How can we assign **greater value** to the outcomes of ethical and responsible AI practices?
- What would an **effective certification framework** or **ethical compliance seal** look like?
- Which **metrics** or **indicators** could help us assess ethical performance in a meaningful way?

The dynamic and context-dependent nature of ethics makes these issues even more complex.

As we transition from viewing AI merely as a **tool** to treating it as a **teammate**, within **hybrid collaborative networks** that include multiple humans, AI agents, robots, and intelligent machines, the need for thoughtful discussion about **ethics and responsibility** becomes even more urgent.

It is encouraging that **LASI**, a network of 13 research centers dedicated to advancing intelligent systems, has placed these critical challenges and concerns at the heart of its agenda.

Visit of Chinese students

On 31 Oct 2025 we had the visit of two PhD students from Beijing Jiaotong University – Wenqiang Li and Fangcong Zhang – who presented their research and achievements on **Human-AI collaboration**.

FINISHED PhD THESES

Thesis: LLM-Based Clustering of Text Documents.

PhD Candidate: Alina Petukhova
Supervisors: Nuno Fachada and João Pedro Carvalho
U Lusofona, 29 September 2025

Alina Petukhova, researcher at Universidade Lusófona, supervised by Nuno Fachada and João Pedro Carvalho (CTS integrated member and CTS collaborator, respectively), successfully defended her doctoral thesis “LLM-Based Clustering of Text Documents” on September 29th at the Lisbon Campus.

The defense, which began at 12:00 and lasted approximately two and a half hours, was evaluated by a jury composed of experts from the Polytechnic University of Valencia, Instituto Superior Técnico, and Universidade Lusófona – Centro Universitário de Lisboa.

The candidate was unanimously approved. The jury praised the scientific relevance and technical innovation of the proposed approach, highlighting its potential impact in the fields of Natural Language Processing and Artificial Intelligence. Some limitations of the work were also noted, which open opportunities for further research.

Her doctoral research has been published in three peer-reviewed papers in Scopus Q1/Q2 journals:

- "TextCL: A Python package for NLP preprocessing tasks",
- "MN-DS: A Multilabeled News Dataset for News Articles Hierarchical Classification", and

- "Text clustering with large language model embeddings".

The latter was made available on arXiv in March 2024 and was formally published in the December 2025 issue of the International Journal of Cognitive Computing in Engineering, which ranks 5th out of 190 journals in the field of Information Systems and Management (Scopus). It has already surpassed 110 citations on Google Scholar, highlighting its strong impact on the scientific community.

Petukhova's work demonstrates one of the first successful applications of large language model embeddings for clustering text documents, marking a significant contribution to the fields of natural language processing and artificial intelligence.

This defense marks the eighth doctoral thesis completed within the PhD Program in Informatics at Universidade Lusófona – Centro Universitário de Lisboa, reinforcing the program's consolidation and its contribution to cutting-edge scientific production.

Thesis: Accurate Rural Road Network within an Integrated Framework of Tools for a Decision Support System in Wildfire Management.

PhD Candidate: Miguel Alexandre Gonçalves Lourenço
Supervisors: Luis Augusto Bica Gomes de Oliveira + Henrique José Monteiro Oliveira
FCT-NOVA, 16 October 2025

Innovative tools to enhance wildfire management by integrating critical data and addressing limitations in current state-of-the-art systems are proposed in this thesis. Existing Decision Support Systems often use fragmented tools to address different tasks that must be conducted in wild-fire scenarios, limiting data integration (such as: rural road networks, several sensor data) and system performance.

The research started by developing accurate rural road detection and extraction to over-come current state-of-the-art challenges, notably road occlusions and shadows cast by vegetation or man-made objects, as well as to better interpret roads made of different surface materials. To achieve this, two methods have been utilised over two custom aerial image datasets reflecting real-world scenarios: (i) the first with DeepLabV3+ for road detection, followed by the Zhang-Suen and Guo-Hall thinning algorithms for road extraction; (ii) the second using four U-Net-based architectures that were confronted, incorporating two post-processing techniques to improve rural road detection and extraction.

A mobile application has been developed to aggregate data from several hardware sensors, namely atmospheric sensor data for real-time monitoring of firefighting assets and infra-red sensor data for post-wildfire hotspot detection, to enhance decision-making in wildfire management. An additional module leverages smartphone sensors and elevation data to geolocate wildfire outbreaks. This application also incorporates a dynamic road network that utilises the proposed road detection and extraction methods and accounts for current road obstructions to optimise route calculations. Lastly, an interoperable web service has been developed to ensure data interoperability among all developed tools, strengthening situational awareness and leading to well-informed decision-making.

Other new projects:

- **COLOSSUS - Multi-Purpose Unmanned Vehicle Swarm Patrol Intelligence Platform For Port Security And Resilience,** https://cordis.europa.eu/project/id/101225980, EU-Horizon Europe (J. Barata, S. Nikghadam-Hojjati, R. Peres, L. Estrada)
- **CAIOC - Cyber Artificial Intelligence Operational Capability,** https://caioc.eu/, EU- Horizon Europe (J. Barata, S. Nikghadam-Hojjati, A. Rocha, N. Farhadi, A. Pegado)
- **ASCENT -** Agile Drone Swarm Control based on Federated Reinforcement Learning and Optimization, COFAC, Science Fund of the Republic of Serbia, Dijaspora projects (S. Tomic)

Best Paper Award at MIXDES 2025

Hugo Serra, João Pedro Oliveira, and João Goes, from CTS-UNINOVA and the Electrical and Computer Engineering department of NOVA FCT, have received a Best Paper Award at the 32nd International Conference "Mixed Design of Integrated Circuits and Systems" (MIXDES 2025), held on June 26–27, 2025, in Szczecin, Poland.

The awarded paper, titled "Optimum Design of a Mostly-Digital Fleischer-Laker Switched-Capacitor Bilinear Bandpass Filter in Standard CMOS Technology", introduces a novel design approach for switched-capacitor filters using inverter-based amplifiers. This mostly-digital implementation addresses the challenges posed by modern nanoscale CMOS technologies, where traditional analog opamps face limitations in gain and bandwidth, making it suitable for energy-efficient Integrated Circuits (IC).

Best paper award at PRO-VE 2025

António Pegado, PhD student member of CTS, got the Student Best Paper Award at PRO-VE 2025 in Porto.

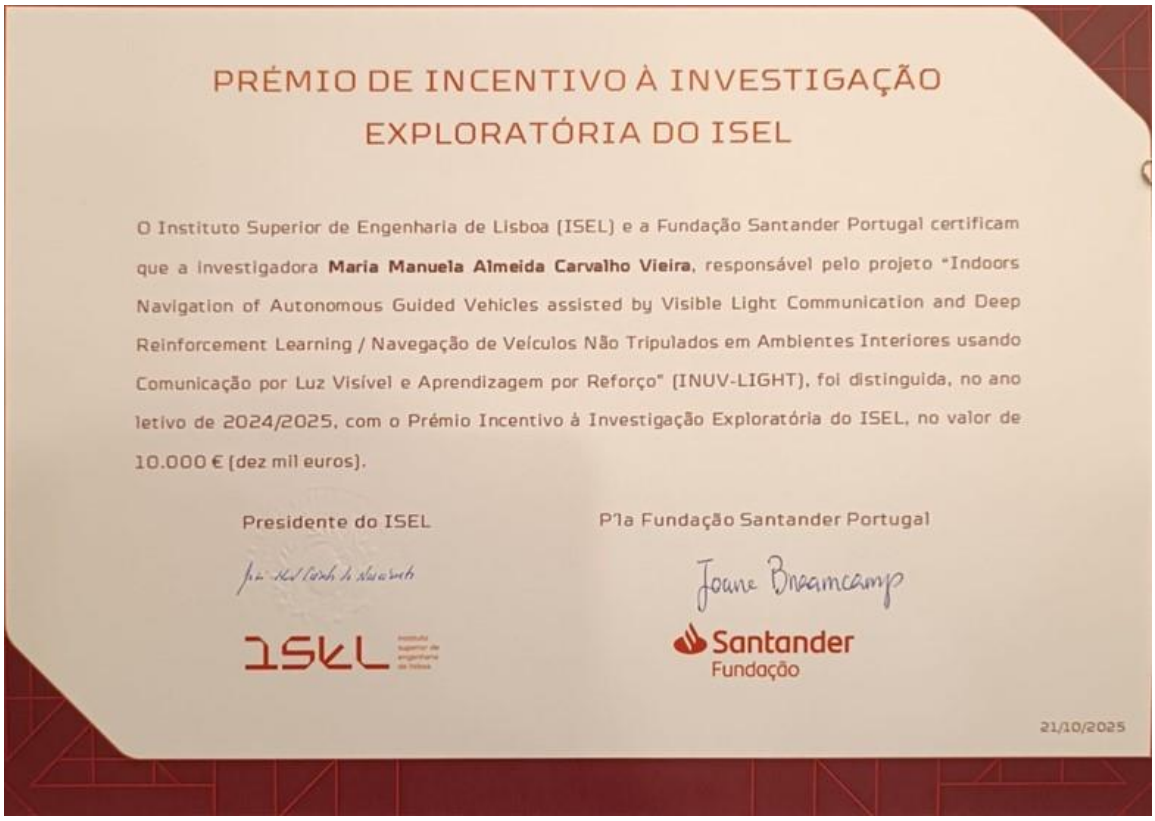
Pegado, A.M., Camarinha-Matos, L.M., Rocha, A.D. (2026). A Brief Survey on Human-AI Collaboration for Architecture Design of Industrial Systems. In: *Hybrid Human-AI Collaborative Networks. PRO-VE 2025*. IFIP Advances in Information and Communication Technology, vol 770. Springer, Cham. https://doi.org/10.1007/978-3-032-05673-3_4

Best associate editor

João Goes from CTS-UNINOVA has been awarded the 2024 Best Associate Editor of IEEE Transactions on Circuits and Systems I (TCAS-I).

Incentive for Exploratory Research

Prof. Manuela Vieira, member of CTS, received the prize “Incentive for Exploratory Research” from ISEL & Fundação Santander.



PRÉMIO DE INCENTIVO À INVESTIGAÇÃO EXPLORATÓRIA DO ISEL

O Instituto Superior de Engenharia de Lisboa (ISEL) e a Fundação Santander Portugal certificam que a investigadora **Maria Manuela Almeida Carvalho Vieira**, responsável pelo projeto "Indoors Navigation of Autonomous Guided Vehicles assisted by Visible Light Communication and Deep Reinforcement Learning / Navegação de Veículos Não Tripulados em Ambientes Interiores usando Comunicação por Luz Visível e Aprendizagem por Reforço" (INUV-LIGHT), foi distinguida, no ano letivo de 2024/2025, com o Prémio Incentivo à Investigação Exploratória do ISEL, no valor de 10.000 € (dez mil euros).

Presidente do ISEL

P'la Fundação Santander Portugal

Joana Breamcamp

Santander Fundação

21/10/2025

Honoring Prof. Adolfo Steiger-Garção, founder of CTS

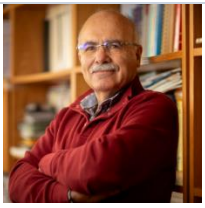
On 9 Sept 2025 a tribute event was held for Prof. Steiger-Garção, one of the pioneers of the School of Sciences and Technology of NOVA University of Lisbon. Prof. Steiger was one of the founding members of the Department of Computer Science, the founder of the Department of Electrical and Computer Engineering, and the founder of the Center of Technology and Systems (CTS-UNINOVA).

As in any academic environment, Prof. Steiger had his many struggles and his opponents and certainly made his mistakes, but his dedication to the institution and the energy he put into his initiatives are unquestionable and a source of inspiration.

A well-deserved tribute!

Stanford – Elsevier – World Top 2% most cited

https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/8

Camarinha-Matos, Luis M. (jubilee)		Single Year rank	Career Long rank
	2025	41,813	52,127
	2024	56,215	53,369
	2023	42,111	52,875
	2022	55,820	55,341
	2021	51,597	57,948
	2020	71,862	60,664
	2019	66,126	65,407

Ortigueira, Manuel D. (jubilee)		Single Year rank	Career Long rank
	2025	45,971	80,623
	2024	72,616	83,143
	2023	56,599	87,776
	2022	52,223	91,958
	2021	43,882	94,398
	2020	51,756	110,064
	2019	60,537	-

Martins, João F. A.		Single Year rank	Career Long rank
	2025	414,852	547,717
	2024	353,181	738,577
	2023	332,967	-
	2022	333,907	-
	2021	399,751	-
	2020	381,929	-
	2019	-	-

Beko, Marko		Single Year rank	Career Long rank
	2025	-	433,321
	2024	-	445,761
	2023	350,013	473,602
	2022	333,332	-
	2021	326,351	-
	2020	207,843	-
	2019	-	-

Jardim-Gonçalves, Ricardo L.R.		Single Year rank	Career Long rank
	2025	-	381,675
	2024	-	407,595
	2023	-	-
	2022	-	-
	2021	-	-
	2020	-	-
	2019	-	-

Jayakody, Dushantha Nalin K.		Single Year rank	Career Long rank
	2025	239,063	-
	2024	255,555	-
	2023	253,612	-
	2022	425,504	-
	2021	-	-
	2020	-	-
	2019	-	-

Ribeiro, Rita Almeida (retired)		Single Year rank	Career Long rank
	2025	-	180,950
	2024	169,343	181,429
	2023	164,697	-
	2022	197,110	185,969
	2021	165,747	190,207
	2020	161,871	209,267
	2019	-	-

Prof. John Ioannidis and his team from Stanford University, used Scopus to create a publicly available database of 100,000 top-scientists that provides standardized information on citations, h-index, co-authorship adjusted hm-index, citations to papers in different authorship positions and a composite indicator.

In this ranking, scientists are classified into 22 scientific fields and 176 sub-fields. Field- and subfield-specific percentiles are also provided for all scientists who have published at least 5 papers.

In the list of the most influential researchers, we can find references to various CTS members.

Research.com - World's Best Scientists 2025

https://research.com/rankings

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Portugal

D-Index & Metrics

Discipline name	D-index	Citations	Publications	World Ranking	National Ranking
Business and Management	62	15,876	470	356	2
Computer Science	63	16,638	567	2451	4

Manuel Duarte Ortigueira

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D-Index & Metrics

Discipline name	D-index	Citations	Publications	World Ranking	National Ranking
Mathematics	36	6,608	190	2267	5

José Barata

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D-Index & Metrics

Discipline name	D-index	Citations	Publications	World Ranking	National Ranking
Electronics and Electrical Engineering	31	4,391	236	5667	29

DoCEIS 2026

https://doceis.dee.fct.unl.pt/

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Main theme:
Dynamics of Human-AI Collaboration

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