

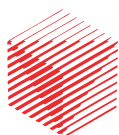
ERCIM

European Research Consortium
for Informatics and Mathematics

Connected Excellence in Research

Activity Report 2022

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ERCIM – the European Research Consortium for Informatics and Mathematics – aims to foster collaborative work within the European research community and to increase cooperation with European industry. In 2022, the members of ERCIM included 16 leading research establishments from 14 European countries. Encompassing about 10 000 researchers and engineers, ERCIM is able to undertake consultancy, development and educational projects on any subject related to its field of activity. ERCIM was founded in 1989.

What is ERCIM?

ERCIM aims to foster collaboration within the European ICST research community and to increase cooperation with industry. Its members are centres of excellence across Europe. ERCIM is internationally recognized as a major representative organization in its field. ERCIM provides access to all major ICST research groups in Europe and has established an extensive program of working groups, publications, fellowships and prizes. It also hosts the European branch of the World Wide Web Consortium (W3C).

ERCIM, a consortium of leading research institutions, focuses on information and communication science and technology (ICST) and related areas of mathematics. ERCIM has a successful track record of promoting ICST research and cooperation in Europe and beyond. Membership is open to top level research institutions (including universities) in ICST.

Objectives

ERCIM's aim is to play a leading role in Information and Communication Technology in Europe by:

- building a Europe-wide, open network of centres of excellence in ICST and Applied Mathematics.
- excelling in research and acting as a bridge for applications
- being internationally recognised both as a major representative organisation in its field and as a portal giving access to all relevant ICST research groups in Europe
- liaising with other international organisations in its field
- promoting cooperation in research, technology transfer, innovation and training.

International Cooperation

ERCIM considers it a high priority to develop cooperation with scientists all over the world. ERCIM hosts the European branch of the World Wide Web Consortium (W3C), the unique international standardization body which sets the Web standards and protocols (HTML, HTTP, XML, etc.). Through W3C, ERCIM participates also in the definition of Web data standards which are of high importance to the research community. ERCIM participates in EU activities and projects. In 2022 ERCIM continued a series of thematic workshops with the Japan Science and Technology Agency (JST) initiated in 2021.

Consultancy

ERCIM experts have been involved in many advisory bodies convened by the European Commission. Additionally, ERCIM senior researchers are participating in several EC-funded roadmapping projects as partners, invited participants or members of advisory boards.

Research Projects

In addition to many projects involving ERCIM member institutes, ERCIM is itself participating in several European Commission related activities and projects as coordinator or partner. In these projects, several member institutes carry out the research while the ERCIM Office takes care of administrative and financial tasks.

Working Groups

Working Groups are specialist networks set up by researchers, within which the ERCIM partners arrange regular workshops with invited external participation to study a specific topic and prepare international research projects.

Members

Member institutes are leading research establishments with excellent links to both the national and international, academic and commercial research communities. All current ERCIM members are national centres of excellence, independent of specific commercial ties. They have a strong involvement in the research programs of the European Union and their country, and joint projects with both small and medium-sized enterprises and large industrial companies.

Benefit of Membership

ERCIM is a European-wide network internationally recognized as a representative organisation in its field. Members can benefit from:

- International recognition as a leading centre for ICT R&D. ERCIM, a European-wide network of centres of excellence in ICT, is internationally recognised as a major representative organisation in its field;
- More influence on European and national government R&D strategy in ICT. ERCIM members team up to speak with a common voice and produce strategic reports to shape the European research agenda;
- Privileged access to standardisation bodies, such as the W3C which is hosted by ERCIM as to other bodies with which ERCIM has also established strategic cooperation.
- Invitations to join projects of strategic importance;
- Establishing personal contacts among executives of leading European research institutes during the bi-annual ERCIM meetings;
- Invitations to join committees and boards developing ICT strategy nationally and internationally;
- Excellent networking possibilities with more than 10.000 high-quality research colleagues across Europe. ERCIM's mobility activities, such as the fellowship programme, leverages scientific cooperation and excellence;
- Professional development of staff including international recognition;
- Publicity through the ERCIM website and ERCIM News, the widely read quarterly magazine.

Innovation

In addition to research in computer science and mathematics, innovation and transfer of research results is one of the ERCIM institutes' current main assignments. ERCIM members play a pioneering role in creating small and medium-sized high-tech companies, an effective way of achieving such a transfer. In addition, ERCIM members have a long track record of cooperation with European industry in R&D projects, generally within the framework of European programmes. As a network, ERCIM can help industrial partners to locate the best scientific teams in Europe for a given domain.

Start-up support

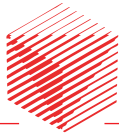
In 2021, ERCIM has launched a start-up support programme for Europe, where partners in ERCIM offer help for start-ups, especially those related to mathematics and informatics (ICT), to expand their businesses in other countries than their own.

Cor Baayen Award

Each year, ERCIM presents a promising young researcher in computer science and applied mathematics with the prestigious Cor Baayen Award.

Publications

ERCIM publishes the quarterly magazine "ERCIM News", white papers, and policy documents.



ERCIM

European Research Consortium
for Informatics and Mathematics

ERCIM is holding general meetings in spring and fall of each year. The 2022 spring meetings were held on 24-25 May 2022 in Berlin hosted by Fraunhofer-Gesellschaft, the fall meetings, including the ERCIM AISBL general assembly, were held on , 18-19 October in Rocquencourt, hosted by Inria.

The ERCIM community is supported by a Consortium of two bodies:

- ERCIM AISBL an international non for profit association under Belgian law, carrying on the activities of ERCIM concerning collaborative research, networking, and support.
- ERCIM EEIG, the European Economic Interest Grouping, responsible for managing the ERCIM Office and hosting the European branch of W3C.

ERCIM Association

The ERCIM association is managed by the Board of the Association:

- Björn Levin, RISE, Sweden, President
- Chrisos Koulamas, ISI, Greece: Treasurer
- Gabriel David, INESC TEC/University of Porto, Portugal: Secretary

and in addition:

- Han La Poutre, CWI, Strategy Task Group chair and Vice-President
- Dimitris Plexousakis, ICS-FORTH, Science Task Group chair
- Monica Divitini, NTNU, Human Capital Task Group chair
- Andreas Rauber, SBA Research and TU Vienna, Outreach Task Group chair.

ERCIM EEIG

The ERCIM EEIG is governed by the EEIG Board of Directors. In 2022 the board was composed of:

- Bruno Sportisse, Inria (president ERCIM EEIG)
- Fabio Martinelli, CNR
- Dimitris Plexousakis, ICS-FORTH.

and supported by an Executive Committee composed of:

- Thierry Priol, Inria
- Yannis Tsikikas, FORTH
- Maurice ter Beek, CNR.

Science Coordination

A major activity within the scope of the Association's mission is related to the promotion of excellence in research and the maintenance of a strong portfolio of scientific activity, materialized in the form of ERCIM-led and coordinated joint research projects and ERCIM-hosted Working Groups. The Science Task Group aims to enable, encourage, sustain and coordinate scientific activities in the form of collaborative research projects and working groups in areas of ICST and Mathematics within which significant research activity is taking place at Institutions within and beyond ERCIM.

The Science Task Group is therefore divided into subtasks:

- Working Groups for building and maintaining a strong network of ERCIM researchers in the different scientific fields of competence of ERCIM.
- Expert Groups which are established on the initiative of ERCIM board to investigate current topics for a limited period with the aim to produce strategic papers or to coordinate relevant activities of common interest.
- Projects for stimulating the submission of ERCIM-led strategically relevant projects and for helping to define the topics for the yearly ERCIM Conference.

The members of the Science Task Group in 2022 included:

Chair:

- Dimitris Plexousakis, FORTH

Members:

- Stéphane Bordas, Univ. of Luxembourg (FNO)
- Gabriel David, INESC
- Ibrahim A. Hameed, NTNU
- Bartek Klin, University of Warsaw
- Christos Koulamas, ISI
- Han La Poutré, CWI
- Anne Lonquist, VTT
- Björn Levin, RISE SICS
- Kyrre Lekve, SIMULA
- Thierry Priol, Inria
- Carlo Meghini, CNR
- Dominik Ślęzak
- Edgar Weippl, SBA.



Dimitris Plexousakis, ICS-FORTH
chair of the ERCIM Science Task Group

The Science Task Group can be contacted at tg-science@ercim.eu



3rd Joint ERCIM-JST Joint Symposium

Theme: Humans and Interactions in Intelligent and XR Environments

ERCIM and the Japan Science and Technology Agency (JST) were organizing the 3rd joint workshop on “Humans and Interactions in Intelligent and Extended Reality (XR) Environments” on 20 and 21 October at Inria Rocquencourt. The workshop presented recent results and emerging R&D work conducted in European institutions and in the context of the JST AIP (Advanced Integrated Intelligence Platform) project in Japan. It provided an excellent opportunity to its European and Japanese participants to be updated with the state of the art in this area, as well as to explore prospects of collaboration that may arise in the context of European programs and the relevant counterpart initiatives of JST.

The ushering of Artificial Intelligence (AI) in our everyday lives and the arrival of XR as a prominent means for Generation Alpha to socialize, learn and play in virtual 3D spaces, such as Metaverse, are introducing yet another paradigm shift and pave the way for reconsidering existing interaction methods in intelligent environments that are expected to progressively surround us. At the same time, addressing human needs and requirements, through the use of newfangled digital technology, are also being reconsidered under the perspective of human-centered approaches that aim to ensure that humans are always in the loop. To this end, Ambient Intelligence (AmI), Artificial Intelligence (AI) and Extended Reality (XR) technologies, are contemplated afresh, also taking stock and exploiting established approaches and practices from more mature domains, including the Web, Mobile and Wearable Computing. New developments give rise to interaction possibilities in emerging hybrid worlds, where the physical environment is interweaved with virtual environments and hitherto unforeseen interaction opportunities for humans unwind.

The above provides the background and laid the foundations for the workshop, which captured and brought to light recent research results, emerging design frameworks and technical solutions that address issues concerned with the human presence and active participation in evolving intelligent and highly interactive hybrid environments, so as to ensure that humans will be comfortable and safe interacting within them, and not become overwhelmed.

Of particular interest for this workshop were endeavors and R&D results in the following five application domains: (i) Living and working environments; (ii) Digital Presentation of and Interaction with Cultural Heritage; (iii) Adaptive Learning, Training and Education; (iv) Games and Serious Games; and (v) Entertainment, Interactive Media, and Social Media.

Chair: Ko Takeuchi (Kyoto University)

The program and the links to the presentations are available online at <https://www.ercim.eu/events/3rd-joint-ercim-jst-workshop>

Forum on Digital Ethics in Research: Beyond Compliance

The ERCIM Ethics Working Group organised jointly with Inria (the French National Institute for Research in Digital Science and Technology) and the CNPEN (the French National Pilot Committee for Digital Ethics) a forum targeted at scientists and Research Ethics Boards on 17-18 October 2022 in Paris.

This successful event, which brought together researchers interested in ethics of digital and connected technologies, consisted of keynote presentations and tutorials, and provided ample space for interactive sessions and open discussions. The participants from all over the world, and from different fields of research (computer science, robotics, philosophy of technology, research integrity, ethics and law) met in Paris and online on the 17th and 18th of October to discuss ethical challenges resulting from interactions between humans and technologies in fields related to research involving ICT. The aim of this workshop was to provide a forum for researchers in digital sciences who face tough ethical questions in their daily activity for which there are not yet consensual answers among the research community. Research in digital sciences raises many new ethical issues such as the use of “autonomous” robots (human responsibility, agency and oversight), the use of data (which raises privacy concerns), the negative impacts of AI systems in terms of discrimination, bias, lack of robustness and reliability, and also the transformative impact of disruptive technologies on society and work. In order to achieve scientific excellence and public trust, a responsible conduct of research in science and engineering is needed. Although some efforts have been made, the situation is far from satisfactory, and more progress needs to be made. On the one hand, it is important to train and raise awareness among researchers, as many are either ill-informed or reluctant to deal with potential ethical implications of their work. On the other hand, it is crucial to consider the current research framework that seems ill-suited to address all the risks and acute concerns about research ethics and research integrity.

Ethical issues arise from the intersections of business, technology, and information such that the whole digital

ecosystem must be taken into account, including stakeholders such as entrepreneurs, users and scientists from fields other than digital sciences, applied mathematics and computer science. In addition, there must be appropriate trade-offs between innovation, ethics, regulation and compliance, since the current digital model is no longer sustainable. Last but not least, if we do not promote “digital sovereignty” in Europe and an operational agenda, there will be no alternatives to the GAFAM or Chinese models. Therefore, agenda for digital sovereignty and agenda for digital ethics should be deeply connected. To meet this ambitious program, the seminar consisted of six sessions devoted to research ethics from the perspective of cross-disciplinary and global setting, review, training, big data and AI, new challenges and opportunities, as well as a tutorial on research ethics for young researchers. Over two days, about 15 researchers spoke on issues relating to governance of AI, research ethics guidelines for the computer



Claude Kirchner (top left), Catherine Tessier (top right) and Andreas Rauber (bottom right) chairing the keynotes and sessions; Björn Levin (bottom left) addressing the audience.

sciences, responsible innovation in a neuroinformatics project, ethics reviews in modern research, challenges of ethics oversight in digital science, the limits of human subjects review, research accountability in machine learning, ethics reflection as a precondition to research funding, teaching and research ethics training, open science, data trusts and the search for anonymous data.

The program and the links to the presentations are available online at <https://www.ercim.eu/beyond-compliance>

The recorded presentations are available on a Youtube channel at <https://kwz.me/hwe>



Franck Cassez receives the FMICS 2022 Best Paper Award from Marieke Huisman (picture by Paula Herber).

27th International Conference on Formal Methods for Industrial Critical Systems - FMICS'22

The yearly conference of the ERCIM Working Group on Formal Methods for Industrial Critical Systems, FMICS, the key conference at the intersection of industrial applications and formal methods, reached its 27th edition this year. Moreover, after two years online, this year's participants met in Warsaw, Poland, on 14 and 15 September.

The aim of the FMICS conference series is to provide a forum for researchers interested in the development and application of formal methods in industry. It strives to promote research and development for the improvement of formal methods and tools for industrial applications.

The conference was chaired by Marieke Huisman (University of Twente, The Netherlands) and Jan Friso Groote (Eindhoven University of Technology, The Netherlands) and organised under the umbrella of CONFEST 2022, alongside with CONCUR, QEST and FORMATS, organised by the general chair Sławek Lasota (University of Warsaw, Poland) and his team. FMICS 2022 attracted participants from many countries worldwide, both from academia and industry.

The international program committee, with members from 16 different countries, received 22 submissions of authors from 12 different countries, and decided to accept 13 papers after a thorough reviewing process. The program moreover included two excellent invited keynote presentations, namely "Reinforcement Learning with Guarantees that Hold for Ever" by Sven Schewe (Liverpool University, UK) and "Supporting Railway Innovations with Formal Modelling and Verification" by Bas Luttik (Eindhoven University of Technology, The Netherlands).

Following a tradition established over the years, Springer sponsored an award for the best FMICS paper. This year, the program committee selected the contribution "Deductive Verification of Smart Contracts with Dafny" by Franck Cassez, Joanne Fuller, Horacio Mijail, and Antón Quiles for the FMICS 2022 Best Paper Award.

FMICS 2023 will take place in Antwerp, Belgium, again under the umbrella of CONFEST 2023.

- FMICS 2022 conference website: <https://fmics2022.fsa.win.tue.nl/>
- Proceedings of the 27th Int. Conf. on Formal Methods for Industrial Critical Systems (FMICS'22). Springer LNCS, vol. 13487, 2022. <https://doi.org/10.1007/978-3-031-15008-1>
- ERCIM WG FMICS: <https://fmics.inria.fr/>

Dependable Software-Intensive Embedded Systems

Co-organised event:

The Working Group co-organised the DECSoS Workshop at SAFECOMP 2022 on 6 September 2022 in Munich. ERCIM was LOGO Partner and scientific sponsor for both the Springer LNCS Proceedings of SAFECOMP 2022 and the Safecomp Workshop Proceedings 2022.

Coordinators:

Erwin Schoitsch, Austrian Institute of Technology (SBA) and Amund Skavhaug (NTNU)

Ethics - Beyond Compliance

Co-organised event:

The ERCIM Ethics Working Group organised jointly with Inria (the French National Institute for Research in Digital Science and Technology) and the CNPEN (the French National Pilot Committee for Digital Ethics) the Forum on Ethics in Research on 17-18 October 2022 in Paris.(see page 7)

Coordinator:

Gabriel David (INESC)

Formal Methods for Industrial Critical Systems

Co-organised event:

- The Working Group organised the FMICS 2022 conference, which took place in Warsaw, Poland, organised by the ERCIM member University of Warsaw on 14–15 September 2022 as part of the CONFEST umbrella conference.. The paper “Deductive Verification of Smart Contracts with Dafny”, by Franck Cassez, Joanne Fuller and Horacio Mijail Antón Quiles, received the best paper award at FMICS 2022. (see page 8). <https://fmics2022.fsa.win.tue.nl/>.
- Tiziana Margaria (Lero and University of Limerick, Ireland) together with Bernhard Steffen (University of Dortmund, Germany) have organised the 11th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA 2022), Rhodes, Greece, 24–28 October 2022: <https://2022.isola-conference.org/>.
- Maurice ter Beek (CNR-ISTI, Pisa, Italy) together with Rosemary Monahan (Maynooth University, Ireland) have been PC chairs of the 17th International Conference on integrated Formal Methods (iFM 2022), Lugano, Switzerland, 7–10 June 2022: <https://ifm22.si.usi.ch/>
- Maurice ter Beek (CNR-ISTI, Pisa, Italy) together with Rosemary Monahan (Maynooth University, Ireland) have been PC chairs of the 17th International Conference on integrated Formal Methods (iFM 2022), Lugano, Switzerland, 7–10 June 2022: <https://ifm22.si.usi.ch/> Alessio Ferrari (CNR-ISTI, Pisa, Italy) together with Marie-Christine Jakobs (Technical University Darmstadt, Germany) have been chairs of the Artefact Evaluation Committee.

Joint Publications:

- M.H. ter Beek, K.G. Larsen, D. Ničković, and T.A.C. Willemse (Eds.), Special Issue on Formal Methods and Tools for Industrial Critical Systems. International Journal on Software Tools for Technology Transfer vol. 24, 3 (2022).

Working Groups

The activities of a Working Group can be divided into several areas: workshops to build the community and maintain its vibrancy, projects designed to advance research and innovation in the particular area of the group, and human mobility to assure the appropriate trained human capital. ERCIM provides some financial support to the Working Groups.

A major activity of an ERCIM Working Group is to search actively for project funding that crosses national borders. ERCIM Working Groups contribute many of the articles in ERCIM News.

The purpose of an ERCIM Working Group is to build and maintain a network of researchers in a particular scientific field. The Working Groups are open to any researcher in the specific scientific field.

Working Groups with activities in 2022

- Dependable Software-Intensive Embedded Systems
- Formal Methods for Industrial Critical Systems
- Multimedia Understanding through Semantics Computation and Learning - MUSCLE
- Trust and Security Management.

<http://dx.doi.org/10.1007/s10009-022-00660-4>.

This FMICS special issue contains eight properly revised and extended versions of papers that were selected from the 24th and 25th International Conference on Formal Methods for Industrial Critical Systems (FMICS 2019 and FMICS 2020).

- A. Lluch Lafuente and A. Mavridou (Eds.), Special Issue on Formal Methods and Tools for Industrial Critical Systems. International Journal on Software Tools for Technology Transfer vol. 24, 6 (2022). <https://doi.org/10.1007/s10009-022-00687-7>.

This FMICS special issue contains four revised and extended versions of papers that were selected from the 26th International Conference on Formal Methods for Industrial Critical Systems (FMICS 2021).

- J.F. Groote and M. Huisman (Eds.), Proceedings of the 27th International Conference on Formal Methods for Industrial Critical Systems (FMICS'22), Lecture Notes in Computer Science vol. 13487, Springer, 2022. <https://doi.org/10.1007/978-3-031-15008-1>.
- T. Margaria and B. Steffen (Eds.), Proceedings of the 11th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation (ISoLA'22), Lecture Notes in Computer Science vols. 13701–13704, Springer, 2022. <https://link.springer.com/conference/isola>.
- M. Seisenberger, M.H. ter Beek, X. Fan, A. Ferrari, A. Haxthausen, P. James, A. Lawrence, B. Luttik, J. van de Pol, and S. Wimmer, Safe and Secure Future AI-Driven Railway Technologies: Challenges for Formal Methods in Railway. In Proceedings of the 11th International Symposium on Leveraging Applications of Formal Methods, Verification and Validation: Practice (ISoLA'22), T. Margaria and B. Steffen (Eds.), Lecture Notes in Computer Science vol. 13704, Springer, 2022, pp. 246–268. http://dx.doi.org/10.1007/978-3-031-19762-8_20.

Coordinator:

Maurice ter Beek (CNR)

<http://fmics.inria.fr/>

MUSCLE - Multimedia Understanding through Semantics Computation and Learning

MUSCLE (formerly Image and Vision Understanding) is the ERCIM Working Group on multimedia understanding through semantics, computation and learning. It gathers teams from both ERCIM and non-ERCIM institutions whose expertise ranges from machine learning and artificial intelligence to image, video and audio processing, and multimedia database management. .

Co-organised events:

- 10th International Workshop on Computational Intelligence for Multimedia Understanding (IWCIM), Hammamet- Tunisia and online, 28-30 September 2022. <https://kwz.me/hx3>
- 1st International Workshop on PeRvasive sEnsing and muLtimedia UnDErstanding (PRELUDE), held in Dijon, France o, 19-21 October 2022. <https://kwz.me/hx5>

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Joint Publications:

- Artificial Intelligence in Point of Care Diagnostics, Journal: Frontiers in Digital Health; Frontiers in Bioengineering and Biotechnology, Guest editors: Massimo Martinelli, Davide Moroni, Ales Prochazka, Maria Strojnik. <https://kwz.me/hj2>
- Machine Learning and Biomedical Sensors, Journal: MDPI Bioengineering; Healthcare; Journal of Clinical Medicine; Journal of Sensors and Actuator Networks, Sensors; Applied Sciences; Biosensors. Guest editors: Massimo Martinelli, Davide Moroni, Ales Prochazka. https://www.mdpi.com/topics/ML_biosens
- IoT-driven Computer Vision Technology for Smart Transportation Applications, Journal: Multimedia Tools and Applications. Guest editors: Davide Moroni, Ugur Toreyin, Maria Trocan. <https://kwz.me/hx6>
- Role of Fuzzy Systems on Biomedical Science in Healthcare, Journal: Computational Intelligence. Guest editors: Davide Moroni, Ugur Toreyin, Maria Trocan. <https://kwz.me/hx7>

Coordinator:

Davide Moroni, ISTI-CNR

<https://wiki.ercim.eu/wg/MUSCLE/>

Security and Trust Management

Co-organised events

- 18th International Workshop on Security and Trust Management STM2022, Copenhagen, Denmark, 29 September 2022. Jonas Boehler's thesis titled "Efficient Secure Computation of Differential Privacy Mechanisms: Input Secrecy & Output Privacy" was honored with the ERCIM STM Best PhD Thesis Award by the Working Group. .

Coordinator:

Pierangela Samarati, University of Milan

<https://www.iit.cnr.it/STM-WG/>

Projects

In 2022, ERCIM participated in nine research projects funded by the European Commission either as coordinator or as a partner, as well as in one national French research project.

A European project can be a richly rewarding tool for pushing your research or innovation activities to the state-of-the-art and beyond. Through ERCIM, our member institutes have participated in more than 100 projects funded by the European Commission in the ICT domain, by carrying out joint research activities while the ERCIM Office successfully manages the complexity of the project administration, finances and outreach.

Horizon Europe: How can you get involved?

The ERCIM Office has recognized expertise in a full range of services, including:

- Identification of funding opportunities
- Recruitment of project partners (within ERCIM and through a strategic partnership with Ideal-IST)
- Proposal writing and project negotiation
- Contractual and consortium management
- Communications and systems support
- Organization of attractive events, from team meetings to large-scale workshops and conferences
- Support for the dissemination of results.

How does it work in practice?

Contact the ERCIM Office to present your project idea and a panel of experts within the ERCIM Science Task Group will review your idea and provide recommendations. Based on this feedback, the ERCIM Office will decide whether to commit to help producing your proposal. Note that having at least one ERCIM member involved is mandatory for the ERCIM Office to engage in a project.

If the ERCIM Office expresses its interest to participate, it will assist the project consortium as described above, either as project coordinator or project partner.

For more information, please contact:

Peter Kunz, ERCIM Office
+33 4 92 38 50 10
peter.kunz@ercim.eu

Project acronym	Project Type	ERCIM's role	ERCIM members involved
CIRPASS	EU DIGITAL Coordination and Support Action	partner	Fraunhofer-Gesellschaft, RISE, ERCIM EEIG/W3C
GateKeeper	EU H2020 Innovation Action	partner	ERCIM EEIG/W3C
GLACIATION	Horizon Europe Research and Innovation Action	partner	ERCIM EEIG/W3C
NEPHELE	Horizon Europe Research and Innovation Action	partner	Inria, ERCIM EEIG/W3C
SDN-microSENSE	EU H2020 Innovation Action	partner	NTNU, ERCIM EEIG/W3C
TERMINET	Horizon Europe Research and Innovation Action	partner	ERCIM EEIG/W3C
TRAPEZE	EU H2020 Innovation Action	partner	ERCIM EEIG/W3C
WAI-COOP	EU H2020 Coordination and support action	coordinator	ERCIM EEIG/W3C
WAI-Guide	EU H2020 Research and Innovation Action	coordinator	ERCIM EEIG/W3C

Funded projects with participation of ERCIM EEIG in 2022.



CIRPASS

CIRPASS aims to prepare the ground for the gradual piloting and deployment of the DPPs from 2023 onwards, with an initial focus on the electronics, batteries, and textile sectors. The project consortium brings together a core network of leading organisations in building the European vision for a unified Digital Product Passport (DPP) approach across multiple value chains.

DPPs are crucial for enabling the EU's transition to a circular economy.

It is expected that the circular economy will replace wasteful linear economies by 2029. To get there requires turning around the linear supply chain system to create a whole circular ecosystem. Through the DPP, CIRPASS helps in laying the foundation for such an ecosystem across two value chains in three sectors: batteries, electronics and textiles, based on common rules, principles, taxonomy and standards. Specifically, the project aims to deliver at least three DPP prototypes for three sectors as well as reaching agreements on key data for circularity and sustainability. The consortium partners will also work together to provide recommendations for a data exchange protocol and system architecture, making sure that the product information contained in the DPP will be standardised and machine-readable.

By enabling a successful rollout of the DPPs in critical sectors, CIRPASS contributes to giving the European industry the possibility to implement the circular business model on a large scale and in a resilient way.

Building a balanced and open community dedicated to the roll-out of the DPPs and beyond

To ensure a cross-sectoral approach, CIRPASS unites leading European Research and Technology organisations, supported by three standardisation organisations, an experienced pool of circular economy and sustainability consultancies, several large European industrial associations, digital technologies and web experts as well as selected digital solution providers. Thanks to this community of expertise and knowledge sharing, the project will build consensus around the DPP concept and contribute to the development of common principles, prototypes and roadmaps for the deployment of DPPs across value chains, sectors and market participants.

Besides the collaboration of project partners, stakeholder engagement is a crucial part of CIRPASS' action plan. An ecosystem for stakeholder engagement will be set up. Various activities to activate companies and organisations from across Europe will be announced throughout the project, including joining Expert and Stakeholder groups, participating in CIRPASS's workshops and public events, responding to consultations and much more.

CIRPASS - Collaborative Initiative for a Standards-based Digital Product Passport for Stakeholder-Specific Sharing of Product Data for a Circular Economy

Total budget: € 2 358 663

EU funding: € 1 999 593

ERCIM's role:

ERCIM EEIG project partner

ERCIM/W3C contact:

Rigo Wenning

ERCIM members involved:

Fraunhofer-Gesellschaft, RISE, ERCIM/W3C

Coordinator:

CEA, France

Duration:

October 2022 – March 2024

<https://cirpassproject.eu/>



GATEKEEPER

GATEKEEPER is a European multi-centric large-scale pilot on smart living environments. The main objective is enabling the creation of a platform that connects healthcare providers, businesses, entrepreneurs, and elderly citizens and the communities they live in, in order to originate an open, trust-based arena for matching ideas, technologies, user needs and processes, aimed at ensuring healthier independent lives for the ageing populations.

The rising population of elderly in the EU member states is giving rise to new challenges in relation to independent living. The EU-funded GATEKEEPER project (Innovation Action) aims to ensure healthier independent lives for the ageing populations. It will connect healthcare providers, businesses, entrepreneurs, elderly citizens and the communities they live in. The goal is to create an open, trust-based arena for matching ideas, technologies, user needs and processes. The project will also incorporate data protection while underpinning value creation using advanced marketing patterns. The solutions deployed will involve 40 000 elderly citizens, as well as authorities, institutions, companies, associations and academics, and eight regional communities from seven EU member states.

By 2022, GATEKEEPER was embodied in an open source, European, standard-based, interoperable and secure framework available to all developers, for creating combined digital solutions for personalised early detection and interventions that (i) harness the next generation of healthcare and wellness innovations; (ii) cover the whole care continuum for elderly citizens, including primary, secondary and tertiary prevention, chronic diseases and comorbidities; (iii) straightforwardly fit “by design” with European regulations, on data protection, consumer protection and patient protection (iv) are subjected to trustable certification processes; (iv) support value generation through the deployment of advanced business models based on the VBHC paradigm.

Gatekeeper applies the Web of Things to healthcare. This will help to support further work by ERCIM on the Web of Things. ERCIM/W3C contributes to the project with work on the Web of Things, data, semantics, security, privacy, accessibility and standardisations and also contribute to dissemination and communication activities.

GATEKEEPER - Smart Living Homes
- Whole Interventions
Demonstrators for People at Health
and Social Risks

Total budget: € 22 596 059

EU funding: € 19 598 327

ERCIM's role:

ERCIM EEIG project partner

ERCIM/W3C contact:

Dave Raggett (W3C)

ERCIM members involved:

ERCIM/W3C

Coordinator:

MEDTRONIC IBERICA SA

Duration:

October 2019 – September 2023

<https://www.gatekeeper-project.eu/>



GLACIATION

GLACIATION stems from a thorough assessment of the current state of edge storage optimizations. The data ecosystem matures towards the edge where an increasing volume of data is created, collected, and shared by and between a growing number of users through heterogenous devices and applications.

Energy consumption, latency, and reliability will push data operations even more at the edge of the ecosystem. However, current storage, energy, and analytics optimisation approaches are focused on a cloud-based infrastructure.

The GLACIATION consortium proposes a solution to address the limitations and improve the energy, cost, and efficiency of storage optimization.

The solution proposed is an energy-aware storage optimization approach which combines relevancy and resource elasticity to optimize data placement in a distributed edge infrastructure.

The approach considers the data lifecycle and utilizes the relevancy of the data to ensure efficient and cost-effective data movement while still meeting the security, privacy, latency and reliability requirements of the edge applications.

GLACIATION is developing a platform that reduces energy consumption for data processing and analytics through AI-enforced minimal data movement operations.

This platform will enable organizations to deploy and manage analytics across the edge-core-cloud continuum in a secure, energy efficient, and simple manner. This is made possible by a Distributed Knowledge Graph (DKG) that spans across the edge-core-cloud continuum.

Objectives

The GLACIATION platform will allow for energy-efficient distributed flow of data from the edge to the cloud.

The AI-powered workflow allocation enhances energy-efficiency satisfying the computation needs. The AI engine handles the dynamically changing flow of data across the edge-core-cloud continuum for continuous training and optimisation of resources usage and workflow allocation.

Swarm technology allows to coordinate the applications at the edge for an optimal functioning of the GLACIATION platform with a data-centric approach.

Built-in intelligence will be needed to tackle the specific challenges of a data-centric approach relating to scalability, energy and bandwidth efficiency, dependability/trustworthiness, adaptability and transparency.

GLACIATION - Green Responsible
Privacy-preserving Data Operatons

Total budget: € 8 256 914

EU funding: € 8 256 914

ERCIM's role:

ERCIM EEIG project partner

ERCIM/W3C contact:

Rigo Wenning

ERCIM members involved:

ERCIM/W3C

Coordinator:

Ministero dell'economia e delle
finanze - MEF, Italy

Duration:

October 2022 – September 2025

<https://glaciation-project.eu/>



NEPHELE

NEPHELE is a Research and Innovation Action project funded by the Horizon Europe programme under the topic “Future European platforms for the Edge: Meta Operating Systems”. Its vision is to enable the efficient, reliable and secure end-to-end orchestration of hyper-distributed applications over programmable infrastructure that is spanning across the compute continuum from Cloud-to-Edge-to-IoT, removing existing openness and interoperability barriers in the convergence of IoT technologies against cloud and edge computing orchestration platforms, and introducing automation and decentralized intelligence mechanisms powered by 5G and distributed AI technologies.

The NEPHELE project aims to introduce two core innovations, namely:

- An IoT and edge computing software stack for leveraging virtualization of IoT devices at the edge part of the infrastructure and supporting openness and interoperability aspects in a device-independent way. Through this software stack, management of a wide range of IoT devices and platforms can be realised in a unified way, avoiding the usage of middleware platforms, while edge computing functionalities can be offered on demand to efficiently support IoT applications’ operations.
- A synergetic meta-orchestration framework for managing the coordination between cloud and edge computing orchestration platforms, through high-level scheduling supervision and definition, based on the adoption of a “system of systems” approach.

The NEPHELE outcomes are going to be demonstrated, validated and evaluated in a set of use cases across various vertical industries, including areas such as disaster management, logistic operations in ports, energy management in smart buildings and remote healthcare services. Two successive open calls will also take place, while a wide open-source community is envisaged to be created for supporting the NEPHELE outcomes.

NEPHELE - A lightweight software stack and synergetic meta-orchestration framework for the next generation compute continuum

Total budget: € 9 127 711

EC Funding: € 9 127 711

ERCIM's role: Project partner

ERCIM members involved:

Inria, ERCIM/W3C

ERCIM/W3C contact:

François Daoust

Scientific coordination:

National Technical University of Athens - NTUA, Greece

Duration:

September 2022 - August 2025

<https://nephele-project.eu/>



SDN-μSense

SDN-microSENSE

The smart energy ecosystem constitutes the next technological leap of the conventional electrical grid, providing multiple benefits such as increased reliability, better service quality and efficient utilization of the existing infrastructures. However, despite the fact that it brings beneficial environmental, economic and social changes, it also generates significant security and privacy challenges, as it includes a combination of heterogeneous, co-existing smart and legacy technologies. Based on this reality, the SDN-microSENSE project intended to provide a set of secure, privacy-enabled and resilient to cyberattacks tools, thus ensuring the normal operation of EPES as well as the integrity and the confidentiality of communications. In particular, adopting an SDN-based technology,

SDN-microSENSE developed a three-layer security architecture, by deploying and implementing risk assessment processes, self-healing capabilities, large-scale distributed detection and prevention mechanisms, as well as an overlay privacy protection framework. Firstly, the risk assessment framework will identify the risk level of each component of EPES, identifying the possible threats and vulnerabilities. Accordingly, in the context of self-healing, islanding schemes and energy management processes will be deployed, isolating the critical parts of the network in the case of emergency. Furthermore, collaborative intrusion detection tools will be capable of detecting and preventing possible threats and anomalies timely. Finally, the overlay privacy protection framework will focus on the privacy issues, including homomorphic encryption and anonymity processes.

The project results were demonstrated by six use cases:

- Investigation of Versatile Cyberattack Scenarios and Methodologies Against EPES
- Massive False Data Injection Cyberattack Against State Operation and Automatic Generation Control
- Large-scale Islanding Scenario Using Real-life Infrastructure
- EPES Cyber-defence against Coordinated Attacks
- Distribution Grid Restoration in Real-world PV Microgrids
- Realising Private and Efficient Energy Trading among PV Prosumers.

ERCIM/W3C was involved in the project's pilot and demonstration scenarios, energy ecosystem standardization, and dissemination. Interoperability testing from ERCIM/W3C will strengthen the proposed SCADA & ICS standardisation activities and also consider aspects of accessibility, privacy, security, and internationalization. ERCIM participates in the Security Advisory Board.

SDN-microSENSE - Microgrid resilient electrical energy System

Total budget: € 10 100 963

EC Funding: € 7 992 463

ERCIM's role:

Project partner

ERCIM/W3C contact:

Philipp Hoschka, Dave Raggett

Coordinator:

AYESA ADVANCED TECHNOLOGIES SA

ERCIM members involved: E

NTNU, EEIG ERCIM/W3C

Duration:

May 2019 - October 2022

<http://www.sdnmicrosense.eu>



TERMINET

The vision of TERMINET is to provide a novel next generation reference architecture based on cutting-edge technologies such as SDN, multiple-access edge computing, and virtualisation for next generation IoT, while introducing new, intelligent IoT devices for low-latency, market-oriented use cases.

TERMINET's primary intention is to bring (more efficient and accurate) decisions to the point of interest to better serve the final user targeting at applying distributed AI at the edge by using accelerated hardware and sophisticated software to support local AI model training using federated learning. Our solution aspires to reduce the complexity of the connecting vast number of heterogeneous devices through a flexible SDN-enabled middleware layer. It also aims to design, develop, and integrate novel, intelligent IoT devices such as smart glasses, haptic devices, energy harvesting modules, smart animal monitoring collars, AR/VR environments, and autonomous drones, to support new market-oriented use cases. Great expectation of the proposal is to foster AR/VR contextual computing by demonstrating applicable results in realistic use cases by using cutting-edge IoT-enabled AR/VR applications. By designing and implementing an IoT-driven decentralised and distributed blockchain framework within manufacturing, TERMINET aims to support maintenance and supply chain optimisation. TERMINET's solution intends to apply a vertical security by design methodology by meeting the privacy-preserving and trust requirements of the NG-IoT architecture. To foster standardisation activities for the IoT ecosystem, TERMINET will provide novel disruptive business models.

For the evaluation of its wide applicability, TERMINET will validate and demonstrate six proof-of-concept, realistic use cases in compelling IoT domains:

- User-Centric Devices in Smart Farming
- Pathway of Personalised Healthcare
- Smart, Sustainable and Efficient Buildings
- Prediction and Forecasting System for Optimising the Supply Chain in Dairy Products
- Group Training Surgery Using VR-enabled IoT Technologies
- Mixed Reality and ML Supported Maintenance and Fault Prediction of IoT-based Critical Infrastructure.

TERMINET - Next Generation Smart Interconnected IoT

EC funding: €3 991,389

ERCIM's role:
ERCIM EEIG project partner

ERCIM members involved:
ERCIM/W3C

Scientific coordination:
University of Western Macedonia

ERCIM/W3C contact:
Dave Raggett

Duration:
November 2020 - October 2023

<https://terminet-h2020.eu/>



TRAPEZE

TRAPEZE – Transparency, Privacy and Security for European Citizens – is a European Innovation Action with the ambitious goal of driving a cultural shift in the protection of the European data economy. It aims to achieve this by reconstructing the concepts of control, transparency and compliance through technical and methodological, citizen-first, innovations. The project will lead the way in putting often-misplaced cutting-edge technologies to practical use for the citizens.

TRAPEZE is aiming to become a lighthouse for European and global initiatives that aspire to deliver citizen-first, cyber-resilient, innovation.

To make this goal a reality, TRAPEZE aims to put citizens' security and privacy into their own hands by providing them, first of all, with innovative dashboards that will enable fine-grained and dynamic control of their data protection preferences across all relevant controllers. These will be accompanied by transparency and feedback mechanisms that will allow data subjects to comprehend the complex flows of their data and actively participate in the prevention, detection, and reporting of legal noncompliance or incidents, and in exercising their legal rights. Furthermore, to ensure citizens of all groups, skills, and physical abilities can manage and monitor their data flows, TRAPEZE will place a special emphasis on usability, but also privacy preferences and sociological aspects across different member states, seeking to establish a feedback loop with its end-users internationally.

TRAPEZE is significantly different from existing approaches in that it does not attempt to protect the citizen by abruptly reshaping the European digital economy. Instead, it seeks to empower the data subject, while enabling a realistic, steady, transition to a more trustworthy data ecosystem that extends beyond online services and deep into the controllers' data silos. TRAPEZE aims to enable privacy-aware and privacy-preserving data value chains by leveraging the concepts of linked data graphs and distributed ledgers (blockchain). Linked data will be used to control the handling of the payload data (actual personal data relating to the citizen) stored and processed by controllers', or processors' systems, even downstream (re-sharing from controller to controller/processor) in the data value chain. Blockchain technology will ensure compliance and decentralisation of records of processing activities, as well as immutability and non-repudiation of said records (with GDPR compliance in mind).

TRAPEZE's proposed architecture and tools will be developed and evaluated under real-world conditions in three pilot scenarios in government, telecommunication and IT services, and banking. All three pilots involve the processing and aggregation of large amounts of personal data from various data sources, with policies specified at different levels of granularity.

TRAPEZE is not starting from scratch, but builds on a decade of EU-funded research in security and privacy, as well as on proprietary solutions and know-how, towards marketable innovations.

TRAPEZE - TRAnsparency, Privacy and security for European citiZEns

EC Funding: € 4 995 812

ERCIM's role:

Project partner, administrative coordination

ERCIM/W3C contact:

Jessica Assoumou

Coordinator:

TENFORCE BVBA

ERCIM members involved:

ERCIM EEIG/W3C

Duration:

September 2020 - August 2023

<https://www.trapeze-project.eu>



WAI-COOP

The power of the World Wide Web is in its universality. Websites and web tools should work for all people. This means they should be designed and coded so that people with disabilities can use them. However, this is not the case with all sites. The WAI-CooP project will provide a unique model to support implementation of the international standards for digital accessibility. Specifically, it will establish vendor-neutral overviews of available training, tools and resources internationally. It will also analyse technological advances and provide opportunities for key stakeholders to share resources and exchange best practices. The project will support EU public bodies in the process of implementing the Web Accessibility Directive.

The objectives of the WAI-CooP projects are to:

- Establish vendor-neutral overview on available training, tools, and resources internationally
- Analyse technological advancements and coordinate with relevant research and development
- Provide opportunities for key stakeholders to share resources and to exchange best practices.

WAI-CooP achieves this by building on the existing wealth of authoritative guidance available from the W3C Web Accessibility Initiative (WAI), to provide a one-stop shop for the broad spectrum of key stakeholders involved in the implementation of digital accessibility, including public bodies and private entities; organisations representing people with disabilities; product, service and training providers; researchers; and policy makers.

WAI-CooP is uniquely positioned to establish necessary dialogs with key stakeholders to help exchange best practices in the community, provide technical clarification and guidance, and refine the authoritative guidance from W3C. WAI-CooP is also uniquely positioned and qualified to help ensure coordination and harmonisation of accessibility standards and practices, raise awareness and build technical capacities in Europe and internationally.

WAI-CooP maximises its impact by utilising transparent and open processes of the W3C to invite all key stakeholders, and by integrating project results into relevant W3C standardisation and EDF networks, to ensure longer-term sustainability beyond the project. WAI-CooP provides direct support for European Union (EU) public bodies in the process of implementing the Web Accessibility Directive (WAD), while using a non-exclusive approach that benefits organisations and governments internationally wanting to implement digital accessibility.

WAI-CooP - Web Accessibility Initiative – Communities of Practice

Total budget: € 1 499 987

EC funding: € 1 499 987

ERCIM's role:

Project coordinator

ERCIM members involved:

ERCIM/W3C

Scientific coordination:

Kevin White, W3C

Administrative coordination:

Jessica Michel Assoumou, ERCIM Office

Duration:

January 2021 – December 2023

<https://www.w3.org/WAI/about/projects/wai-coop/>



WAI-GUIDE

WAI-Guide, Authoritative Implementation Guidance and International Cooperation to Support Training, Awareness Raising, and Capacity Building, is an H2020 coordination and support action that drives sustainable impact for more scalable and affordable digital accessibility solutions. WAI-Guide aims to:

- Provide authoritative implementation guidance and training, thereby growing capacities of available accessibility experts;
- Accelerate tooling support for accessible content authoring, thereby making it more cost efficient to create accessible content;
- Identify and address gaps in accessibility standardisation, thereby increasing the coverage of digital accessibility requirements.

WAI-Guide achieves these objectives by conducting its work as an integral part of the vendor-neutral environment of the World Wide Web Consortium (W3C). WAI-Guide draws together key expertise from industry, end-user representation, public bodies, research, and other fields, to develop core accessibility solutions that are internationally consensed and recognised as authoritative references.

WAI-Guide develops open, royalty-free resources for a variety of audiences, each having a role in digital accessibility. This includes accessibility trainers and educators, consultants and service providers; vendors, developers, and integrators of authoring tools and content management systems; and designers, developers, procurers, project managers, and others involved throughout accessibility implementation processes. WAI-Guide is uniquely positioned and qualified to develop best practices for digital accessibility that are rigorously vetted through the open collaborative W3C Process, and that are harmonised with the authoritative interpretation of the internationally recognised W3C standards for accessibility. WAI-Guide comes at an opportune time to support implementation of the European Directive on Web Accessibility. It strengthens the European Digital Single Market and supports its alignment with global standards on digital accessibility.

WAI-GUIDE - Authoritative Implementation Guidance and International Cooperation to Support Training, Awareness Raising, and Capacity Building

EC funding: € 1 499 743

ERCIM's role:
Project coordinator

ERCIM members involved:
ERCIM/W3C

Scientific coordination:
Kevin White, W3C

Administrative coordination:
Jessica Michel Assoumou, ERCIM Office

Duration:
January 2019 – December 2022

<https://www.w3.org/WAI/about/projects/wai-guide/>

Human Capital

Human Capital (HC) is a central concern within all organizations. In ERCIM its main focus is the European cooperation of different entities with their own HC policies. To this end we are currently building on two key activities. The first is the ERCIM post-doctoral fellowship programme that has been in existence since 1991. This programme facilitates the participation of young scientists in research teams within ERCIM member institutes by organizing postdoctoral fellowships. In addition to mobility in high quality teams, it helps participants further their understanding of the European research environment and career capabilities. The second key activity is the Cor Baayen Young Researcher Award that acknowledges the achievements of young research scientists from European teams in informatics or mathematics.

There is scope for further development of both of these tools, but we would also like to create new schemes for mobility between ERCIM members. In particular, in addition to post-docs, we would like to foster mobility of all scientists, including PhD students, engineers and management and administration professionals.

ERCIM's Human Capital Task Group is in charge of supervising these actions and proposing new directions.

Participants of the Task Group:

- Monica Divitini, NTNU, (chair)
- Adriana Lazzaroni, CNR
- Harald Lenschow, NTNU
- Emma Lière, ERCIM Office
- Laszlo Monostori, SZTAKI
- Jerzy Tiuryn, University of Warsaw
- Bettina Touré, Fraunhofer-Gesellschaft
- Edgar Weippl, SBA Research
- Leon van der Torre, FNR.



*Monica Divitini,
chair of the
ERCIM Human
Capital Task
Group.*



“Alain Bensoussan” Fellowship Programme

The PhD Fellowship Programme has been established as one of the premier activities of ERCIM. Since its inception in 1991, about 700 fellows have passed through the programme. In 2022, 40 young scientists have started an ERCIM PhD Fellowship and 69 fellows have been hosted during the year. This represents 525 person-months.

The ERCIM Fellowship Programme is open to young researchers from all over the world. It focuses on a broad range of fields in Computer Science and Applied Mathematics. The fellowship scheme also helps young scientists to improve their knowledge of European research structures and networks and to gain more insight into the working conditions of leading European research institutions. In 2022, many of the hosted fellows were native of countries outside the European Union. This reflects ERCIM’s contribution to make Europe not only the world’s biggest ‘brain factory’ but also a large ‘brain magnet’ in the field of informatics and applied mathematics. The fellowships are of 12 months duration (with a possible extension), spent in one of the ERCIM member institute. Fellows can apply for second year in a different institute.

Conditions

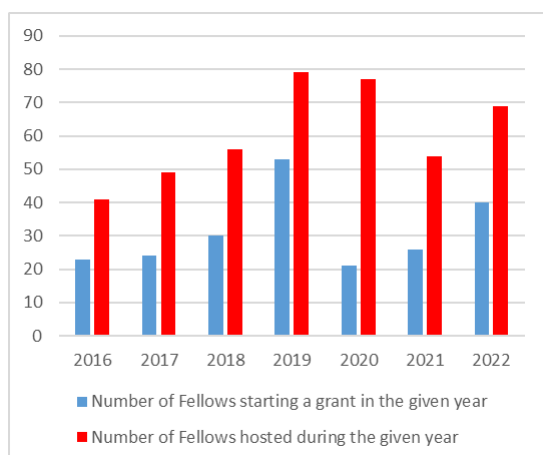
Candidates must:

- have obtained a PhD degree during the last eight years (prior to the application deadline) or be in the last year of the thesis work with an outstanding academic record
- be fluent in English
- have completed their PhD before starting the grant.

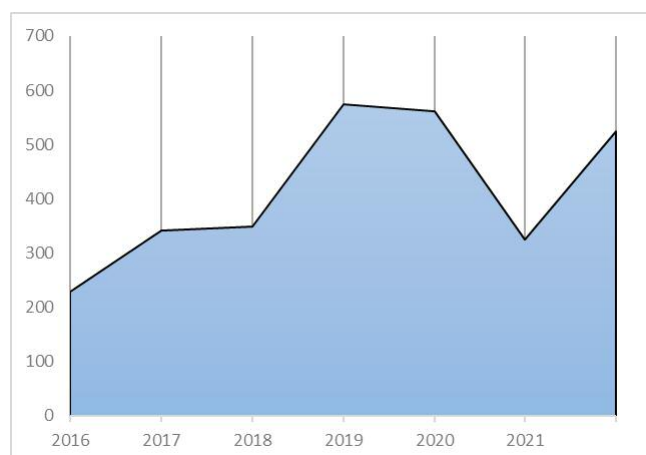
Deadlines for applications are currently 30 April and 30 September each year.

Since 2005 the Fellowship Programme has been named in honour of Alain Bensoussan, former president of Inria, one of the three ERCIM founding institutes.

<http://fellowship.ercim.eu>



Number of fellows hosted from 2016 to 2022.



Person-months equivalents for the fellows hosted from 2016 to 2022.

ERCIM Fellows Community Event 2022

ERCIM organized an online community event for its fellows and guests for the second time on 4 November 2022.

Due to high demand and real interest, ERCIM decided to renew this event, which was originally organised during the pandemic in 2021. The main objective remained the same than for the first community event, namely to promote and improve the interaction between fellows. For this second edition, not only fellows but also their coordinators and representatives of ERCIM members were invited. A total of 59 participants met online to exchange ideas and get to know each other.

Several constraints were taken into account when designing this event. One was the diversity of the audience, which consisted of postdocs from all over the world who were not at the same stage of their fellowship. Another was the duration, which should not be too long for an online event, but allowed for the presentation of 36 posters. In addition, this event should be free of charge for all participants. By using the innovative online platform "Gather Town" all these parameters could be taken into account.

Four virtual rooms were set up for the heart of the event, the poster sessions. These sessions allowed to showcase the remarkable scientific work of ERCIM postdocs and help them find common points of interest. Three host institutes (Fraunhofer-Gesellschaft, VTT and Inria) had a stand where they could also present their organisations. In addition, Professor Keith G Jeffery gave a very interesting talk on "Open Access".

The results of this community event far exceeded expectations. An anonymous post-event survey showed that for all participants who responded, the programme met their expectations, the event was useful and new contacts were established.

The event was organized by Emma Lière, coordinator of the ERCIM scholarship programme, with the support of Catherine Riou and moderated by Monica Divitini, NTNU, Chair of the ERCIM Human Capital Task Group.

“ The ERCIM fellowship program motivated me to explore new research fields, meet experts and researchers from diverse backgrounds in order to get a broader perspective and bring new ideas to solve complex problems. Finally, one of the great learning from this program is, how to bridge the gap between academic research and tangible research outcomes like real time applications and products.



Shrutika SAWANT
Former ERCIM Fellow



“ Knowledge has a wonderful quality that no one can take it away from you. I am grateful to ERCIM for strengthening my assets through the fellowship program! The knowledge that I gained as part of this program played a key role in the trajectory of my career and helps me to feel more confident. I made so many connections which have benefited me immensely throughout my career.



Vijander SINGH
Former ERCIM Fellow





Fabio Carrara, winner of the 2022 Cor Baayen Young Researcher Award.

Fabio Carrara is the Winner of the 2022 ERCIM Cor Baayen Young Researcher Award

The ERCIM Evaluation Committee for the Cor Baayen Young Researcher Award unanimously selected Fabio Carrara from ISTI-CNR as the winner for 2022. An honorary mention was given to Cédric Colas from Inria.

Fabio Carrara is currently employed at the Information Science and Technologies Institute, National Research Council (ISTI-CNR). He obtained his PhD in 2019 from the University of Pisa, Italy. The title of his thesis is "Deep Learning for Image Classification and Retrieval: Analysis and Solutions to Current Limitations". The work was supervised by Prof. Giuseppe Amato, Prof. Claudio Gennaro, and Prof. Francesco Marcelloni.

Fabio's research focuses mainly on deep learning for multimedia understanding, representation, and retrieval. Over the years, he has contributed to these areas of research from a theoretical and an applied perspective.

His professional experience encompasses collaborations with national and international institutions, such as the Masaryk University (Czech Republic), Scuola Normale Superiore (Italy), Institute for Systems and Robotics (Portugal), and several Italian CNR institutes (IN-CNR, ILC-CNR, IIT-CNR). Fabio has been involved in several European and Italian research projects (e.g., AI4Media, CNR4C-AIMAP, ADA, Smart News).

He has published more than 40 papers in international journals (e.g., Medical Image Analysis, IEEE TIP, Computer Vision and Image Understanding, Information Systems, Information Processing & Management, MTAP, ESWA) and conferences in the areas of deep learning, computer vision, and multimedia information retrieval. He is an active member of the scientific community, and he has a good track record as a reviewer of international conferences and journals.

In 2018 he won the ISTI Young Research Award for best young (under 32 years) researcher.

Fabio's research activity stands out for its quality and interdisciplinarity. Worthy of note is his work on adversarial attack detection, proposing solutions based on the analysis of the features extracted by the various layers of deep neural networks. He also researched the application of appropriately simplified deep neural networks on resource-constrained devices, such as smart cameras. His research results are not only theoretical but also have significant application and technology transfer implications, as for example, the miniaturised models for parking occupancy detection (<http://cnrpark.it/>).

Cor Baayen Young Researcher Award 2022

Winner:

Fabio Carrara (Information Science and Technologies Institute, National Research Council (ISTI-CNR)), nominated by Giuseppe Amato (CNR)

Honorary mention

- Cédric Colas (Inria), nominated by Pierre-Yves Oudeyer (Inria)

Finalists

- *Simon Bibri*, nominated by John Krogstie (NTNU);
- *Gabrielle De Micheli* (University of California, San Diego), nominated by Jean-Frédéric Gerbeau (Inria)
- *Joao Gante* (Hugging Face), nominated by Leonel Sousa (INESC)
- *Toni Heittola* (Tampere University), nominated by Katja Ojakangas (VTT)
- *Johannes Mueller-Roemer* (Fraunhofer IGD), nominated by Arjan Kuijper (Fraunhofer-Gesellschaft)
- *Antonis Papaioannou* (ICS-FORTH), nominated by Dimitris Plexousakis (ICS-FORTH)
- *Shazia Tabassum* (INESC TEC), nominated by João Gama (INESC TEC).

Evaluation Committee

The Evaluation Committee constituents were Monica Divitini (NTNU – chair of the ERCIM Human Capital Task Group), Krzysztof Apt (CWI), Gabriel David (INESC), Georgia Kapitsaki (University of Cyprus), Thierry Priol (Inria), Fabrizio Sebastiani (ISTI-CNR), Jerzy Tiuryn (University of Warsaw). The decision was unanimous.

The Cor Baayen Young Researcher Award

The Cor Baayen Young Researcher Award, given to a promising young researcher in computer science and applied mathematics, was created in 1995 to honour the first ERCIM President and is open to young researchers having completed their PhD thesis in one of the “ERCIM countries”. The Cor Baayen Award is a young researcher prize: The selection panel therefore considers the quality of the PhD thesis and all the achievements done up to the nomination date. The award carries a prize of € 5,000. The winner is invited to the ERCIM autumn meetings.

<https://www.ercim.eu/human-capital/cor-baayen-award>

Outreach

The ERCIM Outreach Task Group is responsible for the communication between ERCIM and its wide range of stakeholders. They include national and international funding bodies, the research community in informatics and applied mathematics, with a focus on both senior scientists and young researchers, as well as industrial R&D. ERCIM considers its outreach activities as an important tool for community building. These include publications such as the ERCIM News magazine, the ERCIM web site and the support and organisation of scientific events.

The well-established ERCIM News magazine, under the responsibility of the editorial board, has already successfully contributed to ERCIM's reputation in the scientific community. It is also a good example of the close cooperation between all ERCIM institutes. In addition to ERCIM News, a number of strategic reports have also been published.



*Andreas Rauber,
SBA Research, chair of
the ERCIM Outreach
Task Group*

ERCIM News

Since ERCIM's creation in 1989, the quarterly ERCIM News has been reporting on leading edge European research and developments in Information and Communication Science and Technology (ICST) and Applied Mathematics.

When Inria, CWI and former GMD founded ERCIM in 1989, the establishment of an 'in-house magazine' with the aim of reporting on joint activities was one of the first 'joint actions'. ERCIM rapidly evolved from an in-house magazine to a publication covering reports and news about scientific projects from all over Europe and even beyond.

Today, ERCIM News is published in print and online. In 2022 the printed edition had a circulation of 1500 copies and more than 8600 readers are subscribed to the online edition.

From the early issues on, each issue has focused on a special theme identified by the editorial board. The ERCIM News series has thus become a unique collection providing an overview on a wide range of research topics in ICST and Applied Mathematics. All articles in ERCIM News are written by the scientists themselves and professionally edited. The structure of the articles and the limited length also make them comprehensible for non-experts. Thanks to these unique characteristics, ERCIM News has become well-known in the world of scientific publications, and regular positive feedback from our readers has encouraged us to continue in this way. Indeed, our readership comprises not only scientists, but also students, decision makers, professionals within the industry, representatives from the European Commission, and politicians.

In 2022 ERCIM News published the issues nos 128 - 131. Since its creation, more than 2,000 articles have been published. The popularity of ERCIM News can be credited primarily to our authors to whom the ERCIM editorial board wants to express their warmest thanks on this occasion.

In 2022 ERCIM News issues covered the following special themes:

- ERCIM News 128: Quantum Computing
- ERCIM News 129: Fighting Cybercrime
- ERCIM News 130: Assistive Technologies for a More Accessible and Inclusive Society
- ERCIM News 131: Ethical Software Engineering and Ethically Aligned Design

<https://ercim-news.ercim.eu>



The four issues published in 2022.

ERCIM News Editorial Board in 2022

Central editor:

- Peter Kunz, ERCIM Office

Local editors:

- Christine Azevedo Coste, Inria, France
- Andras Benczur, SZTAKI, Hungary
- José Borbinha, Technical University of Lisbon, Portugal
- Are Magnus Bruaset, SIMULA, Norway
- Monica Divitini, NTNU, Norway
- Marie-Claire Fergue, W3C
- Georgia Kapitsaki, UCY, Cyprus
- Lida Harami, ICS-FORTH, Greece
- Athanasios Kalogeras, ISI, Greece
- Annette Kik, CWI, The Netherlands
- Alexander Nouak, Fraunhofer-Gesellschaft, Germany
- Harry Rudin, Switzerland
- Erwin Schoitsch, AIT Austrian Institute of Technology GmbH/SBA, Austria
- Nguyen Hung Son, University of Warsaw, Poland
- Thomas Tamisier, LIST, Luxembourg
- Maurice ter Beek, ISTI-CNR, Italy

ERCIM Office

ERCIM has an office in Southern France, hosted by Inria and located in the Inria Sophia Antipolis - Méditerranée Research Centre premises, nestled amongst researchers (and surrounded by cicadas). The ERCIM Office manages the day-to-day business of ERCIM as well as the European branch of the World Wide Web Consortium (W3C).

With its team of experts, the ERCIM Office provides assistance to ERCIM members in managing European projects by performing the financial and administrative tasks, either as coordinator or partner. Member institutes can thus fully concentrate on scientific work, unburdened by time-consuming administrative tasks. The office has been involved in more than 100 successful projects. The projects in which the ERCIM Office was involved in 2021 are presented in the section “Projects” in this report. In 2022, they all include projects with participation of W3C. They provide an example of how ERCIM can facilitate cooperation between research institutes and W3C with its interest in Web standardization.

The ERCIM Office is under the responsibility of the ERCIM EEIG Board of Directors and also handles ERCIM AISBL financial matters. The Office supports the whole ERCIM community in administrative matters such as the management of the ERCIM Fellowship Programme, as well as in communications, for example by hosting and maintaining web sites and by producing and publishing ERCIM News.

Hosting and managing the European branch of W3C is another major task of the ERCIM Office.



The ERCIM office is located in the Inria Sophia Antipolis - Méditerranée Research Centre premises.

ERCIM Office Staff

(as of December 2022)

- Philipp Hoschka, Manager
- Caroline Baron, Finance and Administration Manager
- Laurent Carcone, Systems Engineer
- Peter Kunz, Communications, ERCIM News Central Editor, Project Coordinator
- Vivien Lacourba, IT Manager
- Alexandra Lacourba, Event Manager and W3C European Members Administration
- Emma Lière, Project Assistant and Fellowship Programme Coordinator
- Jessica Michel Assoumou, Project Coordinator
- Pascale Peyrol, Project Controller
- Catherine Riou, Administrative Assistant



ERCIM and W3C

ERCIM has been hosting the European headquarters of the World Wide Web Consortium (W3C) since 2003. ERCIM and W3C aim to strengthen relationships throughout Europe to better support the development of Web technology and to jointly share the results of their collaboration.

Three of the European W3C Chapters are currently based at ERCIM institutes, namely at CWI (Benelux), FORTH (Greece) and SZTAKI (Hungary). Originally, W3C Offices were located at the ERCIM institutes CWI, Fraunhofer-Gesellschaft, FORTH, SZTAKI, CNR, RISE/SICS and STFC). W3C Chapters in Europe work with their regional Web communities to promote W3C technologies in local languages, broaden W3C's geographical base, and encourage international participation in W3C activities.

As a consortium of members from many European countries, ERCIM creates a balance between European diversity and necessary homogeneity by building bridges between different cultures and facilitating the movement of technical ideas within academia and across borders. W3C is steered by its members, having interests in the Web (such as HTML5, Web Privacy and Security, Web payments, Web of Things, etc.) whereas ERCIM jointly has widespread interest in many research fields where Web standards are rarely used. ERCIM then helps to gather those Web communities and make them work together.

Moreover, ERCIM members have strong ties with industrial partners and start-up companies. This is an excellent opportunity for W3C to enlarge its cooperation with European industry, which can broaden its participation in the making and adoption of standards.

Finally, hosting W3C allows ERCIM members to benefit from the know-how and expertise of the W3C team, and to increase its visibility based on W3C's worldwide reputation. The joint efforts of ERCIM and W3C have started to increase Web research cooperation in Europe.

The World Wide Web Consortium (W3C) is an international community where Member organizations, a full-time staff, and the public work together to develop Web standards. W3C's mission is to lead the Web to its full potential.

W3C does not have a single physical headquarters. There are four institutions that "host" W3C. ERCIM is the host of the European branch of W3C and part of the W3C staff is employed by ERCIM.

ERCIM Membership

How to become an ERCIM Member

- Prospective members must be outstanding research institutions (including universities) within their country;
- Applicants shall address a request accompanied by short description to the ERCIM Office. The description must contain:
 - Name and address of the institute;
 - Short description of the institute's activities;
 - Staff (full time equivalent) relevant to ERCIM's fields of activity;
 - Number of European projects currently involved in;
 - Name of the representative and the alternate.
- Membership applications will be reviewed by an internal board and may include an on-site visit;
- The decision on admission of new members is made by the General Assembly of the Association, in accordance with the procedure defined in the Bylaws (<http://kwz.me/U7>), and notified in writing by the Secretary to the applicant;
- Admission becomes effective upon payment of the appropriate membership fee in each year of membership;
- Membership is renewable as long as the criteria for excellence in research and an active participation in the ERCIM community, cooperating for excellence, are met.

ERCIM is one of the most recognized ICT Societies in Europe. By joining ERCIM, your research institution or university can directly participate in ERCIM's activities and contribute to the ERCIM members' common objectives to play a leading role in Information and Communication Technology in Europe:

- Building a Europe-wide, open network of centres of excellence in ICT and Applied Mathematics;
- Excelling in research and acting as a bridge for ICT applications;
- Being internationally recognised both as a major representative organisation in its field and as a portal giving access to all relevant ICT research groups in Europe;
- Liaising with other international organisations in its field;
- Promoting cooperation in research, technology transfer, innovation and training.

Benefit of ERCIM membership

Institutions, as members of ERCIM AISBL, benefit from:

- International recognition as a leading centre for ICT R&D. ERCIM, a European-wide network of centres of excellence in ICT, is internationally recognised as a major representative organisation in its field;
- More influence on European and national government R&D strategy in ICT. ERCIM members team up to speak with a common voice and produce strategic reports to shape the European research agenda;
- Privileged access to standardisation bodies, such as the W3C which is hosted by ERCIM as to other bodies with which ERCIM has also established strategic cooperation. These include ETSI, the European Mathematical Society and Informatics Europe;
- Invitations to join projects of strategic importance;
- Establishing personal contacts among executives of leading European research institutes during the bi-annual ERCIM meetings;
- Invitations to join committees and boards developing ICT strategy nationally and internationally;
- Excellent networking possibilities with more than 10.000 high-quality research colleagues across Europe. ERCIM's mobility activities, such as the fellowship programme, leverages scientific cooperation and excellence;
- Professional development of staff including international recognition;
- Publicity through the ERCIM website and ERCIM News, the widely read quarterly magazine.

For further information about how to join ERCIM AISBL, please contact the ERCIM Office (contact@ercim.eu)

Membership

Institutions member of ERCIM in 2022:



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