

CALL FOR PAPERS

WWW.DATE-CONFERENCE.COM



© UMR NNR5 MAP ENSAL/ONLYLYON



DESIGN, AUTOMATION AND TEST IN EUROPE

THE EUROPEAN EVENT FOR ELECTRONIC
SYSTEM DESIGN & TEST

31 MARCH – 2 APRIL 2025
LYON, FRANCE

CENTRE DE CONGRÈS DE LYON



CONFERENCE ORGANISATION

K.I.T. Group GmbH Dresden
Bautzner Str. 117–119
01099 Dresden, DE
Phone: +49 351 65573 137
Email: date@kitdresden.de

CHAIRS

General Chair

Aida Todri-Sanial
Eindhoven University of Technology, NL
Email: a.todri.sanial@tue.nl

Programme Chair

Theocharis Theocharides
University of Cyprus, CY
Email: theocharides.theocharis@ucy.ac.cy

DATE 2025

The DATE conference is the main European event bringing together designers and design automation users, researchers and vendors as well as specialists in the hardware and software design, test and manufacturing of electronic circuits and systems. DATE puts a strong emphasis on both technology and systems, covering ICs/SoCs, reconfigurable hardware and embedded systems as well as embedded software.

The three-day event consists of a conference with regular papers, late breaking results papers and extended abstracts, complemented by timely keynotes, special days, focus sessions, embedded tutorials, half-day workshops and multi-partner project sessions. The event will also host the Young People Programme and unplugged sessions fostering the networking and the exchange of information on relevant issues, recent research outcomes and career opportunities.

DATE 2025 is the 28th edition of an event that has always been the place for researchers, young professionals and industrial partners to meet, present their research and discuss the current development and next trends, with high emphasis on social interaction.

At DATE 2025, the DATE community, again, comes together for the conference in an intensive three-day format, focussing on interaction as well as further strengthening the community. The vast majority of regular papers will be presented in technical sessions using short flash-presentations, where the emphasis is on poster-supported live interactions (in addition to the common full-length presentation videos

available before, during and after the conference). By this, we continue to focus on the core value of conferences: meeting, discussing and exchanging.

THE CONFERENCE

The conference addresses all aspects of research into technologies for electronic and (embedded) systems engineering. It covers the design process, test and tools for design automation of electronic products ranging from integrated circuits to distributed large-scale systems. This includes both hardware and embedded software design issues. The conference scope also includes the elaboration of design requirements and new architectures for challenging application fields such as sustainable computing, smart societies and digital wellness, secure systems, autonomous systems and smart industry, and state of the art applications of artificial intelligence. Engineers, scientists and researchers involved in innovative industrial designs are particularly encouraged to submit papers to foster feedback from design to research.

SPECIAL DAYS ON EMERGING TOPICS

The scientific research track is complemented by a set of sessions focussing on emerging topics bringing new challenges to the community, with presentations and interactions on interesting and timely issues.

Special Day “New Trends in AI/ML”

This Special Day will focus in exploring the latest trends and innovations in Artificial Intelligence (AI) and Machine Learning (ML). AI (and mainly generative AI) is booming since the release of chat-GPT and it will change the future of Design, Automation and Test. This Special Day will highlight the following topics:

- Design of hardware architectures, including automatic exploration of large design spaces, assistance of the human designer, resource selection and optimisation
- Verification of hardware architectures, with topics such as performance prediction, (formal) design validation, accelerating simulations thanks to AI-Augmented Surrogate Models
- AI-Accelerated Physical Design and Validation of layout and floorplans
- Sustainability in AI/ML Development.

During the talks, AI/ML techniques such as Neural architecture search (NAS), Generative adversarial networks (GAN), Reinforcement learning, hybridisation of classical and AI techniques, federation of Small Language Models (or agents) will be discussed.

These topics will be presented by a lineup of distinguished speakers who are expert in their respective fields. The day will conclude with a panel discussion allowing exchanges with the audience and trigger discussions on the interaction between the various domains presented during the day.

This event is ideal for AI/ML researchers, data scientists, hardware designers, software developers, sustainability advocates, and anyone interested in the future directions of AI and ML for Design, Automation and Test.

[Ana-Lucia Verbanescu \(University of Twente, NL\)](#)

[Marc Duranton \(CEA, FR\)](#)

Special Day “Unconventional Computing”

Sustaining increasingly challenging compute workloads requires going beyond technology scaling with von Neumann architectures in traditional CMOS. Examples include NP-hard optimisation, massive

sensor processing in IoT, as well as deep learning and artificial intelligence where training compute requirements grow by ~750x every two years. Therefore, rethinking computing toward more sustainable and efficient solutions is urgently needed. This can take place by bringing computation closer to its physical substrate, or by seeking new computing paradigms across all layers of the compute stack, thereby spanning architecture, circuit, and device solutions.

The Special Day on Unconventional Computing covers key emerging topics in the areas of quantum computing, neuromorphic engineering, physics-based computing, probabilistic computing, reversible and adiabatic computing, and cellular automata. Starting with talks by key experts and closing with a panel discussion, this Special Day aims to outline tradeoffs and synergies in the wide landscape of unconventional computing approaches.

[Charlotte Frenkel \(TU Delft, NL\)](#)

[Jean-Paul Strachan \(FZ Juelich, DE\)](#)

Special Initiative “Autonomous Systems Design”

Fueled by the progress of Artificial Intelligence, autonomous systems are increasingly becoming integral parts of many Internet-of-Things (IoT) and Cyber-Physical Systems (CPS) applications, such as automated driving, robotics, avionics, industrial automation and smart systems in general. Autonomous systems are self-governed and self-adaptive systems that are designed to operate in an open and evolving environment, which is not completely defined at design time. This poses a unique challenge to the design and verification of dependable autonomous systems. The DATE Special Initiative on Autonomous Systems Design will include peer-reviewed papers, special sessions and interactive sessions addressing these challenges.

More details and a specific call for contributions can be found online: www.date-conference.com/asd

[Selma Saidi \(Technische Universität Dortmund, DE\)](#)

[Rolf Ernst \(Technische Universität Braunschweig, DE\)](#)

UNPLUGGED SESSIONS

DATE Unplugged Sessions on The Twinning Paradigm - Come join us for stimulating brainstorm discussions in small groups about the future of digital engineering. Our focus will be on the digital twinning paradigm where virtual instances are created of a system as it is operated, maintained, and repaired (e.g., one evolving virtual instance of each individual car realised from a single design model). You will actively engage with peers in a stimulating exchange to investigate how we can take advantage of this paradigm in engineering systems and what new system engineering approaches and architectures (hardware/software) and design workflows are needed and become possible.

[Pieter Mosterman \(Raven Industries, US\)](#)

[Hans Vangheluwe \(University of Antwerp, BE\)](#)

unplugged-sessions@date-conference.com

TOPIC AREAS FOR SUBMISSION

Within the scope of the conference, the main areas of interest are organised in the following tracks. Submissions can be made to any of the track topics. For detailed descriptions of the topics, please refer to the DATE website: www.date-conference.com

Track D: Design Methods and Tools addresses design automation, design tools and hardware architectures for electronic and embedded systems. The emphasis is on methods, algorithms, and tools related to the use of computers in designing complete systems. The track focus includes significant improvements on existing design methods and tools as well as forward-looking approaches to model and design future system architectures, design flows, and environments.

[Lukas Sekanina \(Brno University of Technology, CZ\)](#)

This track is organised in the following topics:

- D1** System-level design methodologies and high-level synthesis
- D2** System simulation and validation
- D3** Formal methods and verification
- DT4** Design and test for analogue and mixed-signal circuits and systems, and MEMS
- DT5** Design and test of hardware security primitives

- DT6** Design and test of secure systems
- D7** Network on chip and on-chip communication
- D8** Architectural and microarchitectural design
- D9** Low-power, energy-efficient and thermal-aware design
- D10** Approximate computing
- D11** Reconfigurable systems
- D12** Logical analysis and design
- D13** Physical analysis and design
- D14** Emerging design technologies for future computing
- D15** Emerging design technologies for future memories
- D16** Design Automation for Quantum Computing

Track A: Application Design is devoted to the presentation and discussion of design experiences with a high degree of industrial relevance, real-world implementations, and applications of specific design and test methodologies. Contributions should illustrate innovative or record-breaking design and test methodologies, which will provide viable solutions in tomorrow's silicon, embedded systems, and large-scale systems.

[Alberto Bosio \(University of Lyon, FR\)](#)

This track is organised in the following topics:

- A1 Power-efficiency and Smart Energy Systems for Sustainable Computing
- A2 Smart Society and Digital Wellness
- A3 Secure Systems, Circuits and Architectures
- A4 Autonomous Systems and Smart Industry
- A5 Applications of Emerging Technologies
- A6 Applications of Artificial Intelligence Systems

Track T: Test and Dependability covers all test, design-for-test, reliability, and design-for-robustness issues, at system-, chip-, circuit-, and device-level for both analogue and digital electronics. Topics of interest also include diagnosis, failure mode analysis, debug and post-silicon validation challenges, and test or fault injection methods addressing system security.

Matteo Sonza Reorda (Politecnico di Torino, IT)

This track is organised in the following topics:

- T1 Modelling and mitigation of defects, faults, variability, and reliability
- T2 Test generation, test architectures, design for test, and diagnosis
- T3 Dependability and system-level test
- DT4 Design and test for analogue and mixed-signal circuits and systems, and MEMS
- DT5 Design and test of hardware security primitives
- DT6 Design and test of secure systems

Track E: Embedded Systems Design is devoted to the modelling, analysis, design, verification and deployment of embedded software or embedded/cyber-physical systems. Areas of interest include methods, tools, methodologies and development environments for real-time systems, cyber-physical systems, networked systems, and dependable systems. Emphasis is, also, on model-based design and verification, embedded software platforms, software compilation and integration for these systems. Nele Mentens (KU Leuven, BE & Leiden University, NL)

This track is organised in the following topics:

- E1 Embedded software architecture, compilers and tool chains
- E2 Real-time, dependable and privacy-enhanced systems
- E3 Machine learning solutions for embedded and cyber-physical systems
- E4 Design methodologies for machine learning architectures
- E5 Design, specification, modelling and verification for embedded and cyber-physical systems

LATE BREAKING RESULTS

Following the successful edition in 2024, DATE 2025 provides the community with an opportunity to present new and exciting contributions for submission as Late Breaking Results (LBR) papers. LBR papers should cover new research relevant to the DATE topics. Two types of papers can be submitted:

- 1) breakthrough approaches or novel orthogonal research directions
- 2) breakthrough results, where sufficient work has been accomplished to indicate the viability of the work

Prospective authors are invited to submit Late Breaking Results papers (2 pages and two-column format) describing original and innovative work. Authors should use the template provided on the DATE website, with a blind submission. LBR submission titles must begin with "Late Breaking Results: ...". For creating a successful LBR forum, the LBR submission will be peer-reviewed (blind-review) by a wide-scope TPC committee. Please note that the Late Breaking Results deadline is not an extension of the general paper submission deadline. Accepted LBR submissions will be presented in dedicated technical sessions focussing on live interactions around the submitted work to get feedback and exchange with the DATE community. Anachiara Ruospo (Politecnico di Torino, IT)
Pascal Vivet (CEA, FR)

COMMITTEES

A full list of the executive and programme committee members is available on the DATE website:
www.date-conference.com

SPONSORS

The event is sponsored by the European Design and Automation Association, the Electronic System Design Alliance, the IEEE Council on Electronic Design Automation and the ACM Special Interest Group on Design Automation.

In cooperation with IEEE Computer Society Test Technology Technical Community (TTTC), IEEE Solid-State Circuits Society (SSCS) and IEEE Computer Society (IEEE CS).

SUBMISSION INSTRUCTIONS

All manuscripts for any technical topic of the D, A, T, and E tracks must be submitted for review electronically, following the instructions on the conference website:
www.date-conference.com/submission-instructions

The accepted file format is PDF. Any other format and manuscripts received in hard-copy form will not be processed. All submissions require novel and complete research work supported by experimental results.

Submissions must not exceed 6 pages in length, excluding references. An additional page is allowed for references only.

WARNING: It is not possible to modify the list and the order of authors once the paper is submitted and the deadline has expired. If the paper is accepted, this information will be the one used for the final publication.

All submitted papers should be formatted as close as possible to the final format: A4 pages or Letter sheets, double column, single spaced, Times or equivalent font of minimum 10pt, avoid the use of type-3 fonts. Do not use baseline stretch to compress text. Paper templates are available on the DATE website for your convenience. DATE follows a double-blind review process. To support it, submissions must not include authors' names. In addition, prior work by the same authors should be referenced in full and it should be discussed in such a way that it does not disclose that the work is from the same authors. Any submission that is not in line with the above rules will be discarded. Accepted papers not complying with the above-mentioned formatting instructions will not be included in the conference proceedings.

All papers will be evaluated with regard to their suitability for the conference, originality, and technical soundness. The programme committee reserves the right to reorient a submission to an extended abstract.

Submissions simultaneously under review or accepted by another conference, symposium, or journal will be rejected. Submissions for which pre-prints are available (e.g., on arXiv) are allowed, BUT these pre-prints may only be published after authors are notified of whether their manuscript is accepted or not. The authors are expected to follow all reasonable efforts to ensure that the submission is compliant with the double-blind review process.

CAMERA-READY AND PRESENTATION

Authors of accepted papers will prepare the camera-ready version of the paper, adhering to the IEEE proceedings format and will be checked through PDFeXpress. A recorded video presentation of the paper is also required, according to guidelines that will be made available.

REGISTRATION RULE FOR ALL ACCEPTED PAPERS

Please note that each paper shall be accompanied by at least one full conference registration at the paper author rate (i.e., two paper author registrations are needed for two accepted papers, e.g., from the main author or a co-author of the paper). **DATE is a physically held conference, and not a hybrid conference.** Therefore, it is mandatory that at least one author of each accepted paper attends the session where the paper is discussed and presents the work as requested, otherwise the paper will be deleted from the proceedings afterwards (despite full payment at the paper author rate).

FOCUS SESSIONS

Focus Sessions can take the form of (1) Panels, discussing visionary and controversial issues or (2) Hot-Topic Sessions, focusing on the introduction and discussion of new R&D problems, addressing trends in the technical domains that are of interest to the conference participants.

Focus Session proposals must consist of an extended summary of up to 1,500 words in a PDF file, describing the topic, the authors/speakers and the format, and must be submitted via the DATE website by 11 October 2024. The submitter of a Focus Session proposal will be notified of acceptance or rejection of his/her proposal by 19 November 2024. In case of acceptance, contributors of accepted Focus Sessions will be asked to submit final texts or statements of panellists, as appropriate, for publication in the proceedings as final, camera-ready manuscripts by 17 January 2025. Panel sessions are entitled to one (1) page per panellist in the proceedings; Hot-Topic Sessions are allocated a maximum of six (6) pages paper per speaker or one single paper for the entire session

which should not exceed ten (10) pages. As a rule of thumb, no more than four speakers per session should be planned for Hot-Topic Sessions. For the accepted Focus Sessions, it is the responsibility of the Focus Session organiser to ensure that the 17 January 2025 deadline is met and all the camera-ready manuscripts from their respective Focus Sessions are technically sound and meet the editorial standards of the DATE proceedings. The Focus Session Co-Chairs may decline the publication of the final manuscripts in the DATE proceedings if the above responsibility is not fulfilled. Accepted or invited speakers to the Focus Sessions will be required to register for the conference.

Catherine Le Lan (Synopsys, Inc., FR)
Olivier Sentieys (IRISA/Inria, FR)
focus-sessions@date-conference.com

Further Focus Sessions will concentrate fully on the industrial perspective and are intended as a platform for DATE conference sponsors to present their work. For more information, please contact:
K.I.T. Group GmbH Dresden, date@kitdresden.de

EMBEDDED TUTORIALS

DATE 2025 Embedded Tutorials are designed to provide attendees with an introduction to important topics in the DATE technical areas as well as hands-on on design automation tools. Early career professionals as well as graduate students will benefit from the introductory knowledge about important topics and tools. Mid-career professionals can attend tutorials to extend their horizons. Embedded Tutorials will be integrated into the 3-day schedule of DATE. We welcome proposals for tutorial presentations in the DATE technical areas. Proposals should be submitted before 11 October 2024, via the DATE submission website. For more information, please contact:

Elena Ioana Vatajelu
(TIMA/CNRS/Université de Grenoble-Alpes, FR)
Francisco Cazorla
(Barcelona Supercomputing Center, ES)
tutorials@date-conference.com

WORKSHOPS

DATE invites proposals for half-day workshops on emerging research and application topics in design, application, test, and embedded systems and software. Topics that are not directly covered in the DATE technical programme but represent new research directions with potential impact on future DATE technical areas are strongly encouraged. Following the format of previous editions, DATE Workshops will be integrated into the 3-day schedule of DATE and thus will be open for attendance to all DATE registered attendees. For information and detailed descriptions on how to propose a workshop, please refer to the DATE website. Proposals should be submitted electronically by 11 October 2024, via the DATE website.

Maria Michael (University of Cyprus, CY)
José Flich (Technical University of Valencia, ES)
workshops@date-conference.com

MULTI-PARTNER PROJECTS

The DATE 2025 programme will include sessions dedicated to multi-partner innovative and/or highly-technological research projects addressing the DATE 2025 topics. This includes projects funded by EU schemes (Horizon Europe, EIC, H2020, ECSEL, PENTA, MSCA, COST, CleanSky, ...), nationally- and regionally-funded projects, projects funded by the European Space Agency and collaborative research projects funded by industry. The session is an excellent opportunity to present projects' contributions to the DATE community and increase the impact of dissemination and outreach activities.

Project coordinators are invited to submit their contribution presenting the concepts, work in progress, or lessons learned from the project, either in the form of a full paper or a one-page abstract. MPP submission titles must begin with "Multi-Partner Project: ...". Submissions will be (not blind) peer-reviewed and must be submitted before 29 October 2024 via the DATE website. Accepted contributions will be published in the DATE 2025 proceedings.

For more information, please contact:
Maksim Jenihhin (Tallinn University of Technology, EE)
Franco Fummi (Università di Verona, IT)
mpp@date-conference.com

Projects can also showcase their vision, activities and outcomes benefitting from DATE's high visibility and networking assets, by exploiting further project dissemination options; for more information please contact:

K.I.T. Group GmbH Dresden, date@kitdresden.de

YOUNG PEOPLE PROGRAMME

The Young People Programme is an initiative targeting Masters/PhD students and early-stage researchers with the goal of increasing their visibility, establishing contacts and encouraging discussion about future perspectives and upcoming research initiatives. The programme includes various events. All these activities, PhD Forum, Careers Fair – Industry and Student Teams Fair as well as Careers Fair – Academia and University Fair, will be held in-person, to allow a strong participation and interaction, in a format offering networking and connection opportunities.

PHD FORUM

The PhD Forum is a poster session hosted by EDAA, ACM SIGDA, and IEEE CEDA for PhD students who have completed their PhD thesis within the last 12 months or who are close to completing their thesis work.

It represents an excellent opportunity for them to get exposure to and feedback on their research and for the industry to get a glance of the state of the art in system design and design automation. The abstracts and posters will be made available on the DATE website and participants have the chance to win one of two PhD Forum awards.

Proposals can be submitted via the DATE website until 1 December 2024. For further information, please contact:

Christian Pilato (Politecnico di Milano, IT)
Dirk Stroobandt (University of Ghent, BE)
ypp-phd@date-conference.com

CAREERS FAIR – INDUSTRY & STUDENT TEAMS FAIR

Careers Fair - Industry: is a platform where students (PhD and Master) and early career researchers connect with EDA and micro-electronics industries. A dedicated session allows to hear from sponsors about their companies, ongoing activities, and work culture. The Careers Fair - Industry session includes a keynote on career opportunities in a certain field of microelectronics and a panel session where young professionals talk about start of their careers in the industry and start-ups. Before the conference, jobseekers can attend a seminar on how to present themselves effectively to HR representatives, as well as to apply to open positions through the same HiPEAC.net online portal. That can lead to interviews arranged during DATE Conference.

Student Teams Fair: allows student teams participating in international competitions present their activities, success stories and challenges to DATE attendees and to representatives from EDA and microelectronic companies. It can lead to opportunity to receive funding and support for their future projects.

Submission deadline is 31 January 2025.
For more information, please contact:
Sara Vinco (Politecnico di Torino, IT)
Laura Rocha (Synopsys, PT)
Florian Bilstein (Racyics, DE)
ypp-industry@date-conference.com

CAREERS FAIR – ACADEMIA & UNIVERSITY FAIR

The University Fair and Careers Fair – Academia are forums for the academic sector to interact with DATE participants. We facilitate this interaction by providing two channels:

University Fair: is an extension to the previous University Booth programme and channel to foster the transfer of mature academic work to a large audience. Interested research academics are invited to submit a 1-page abstract description of their precommercial research results and prototypes. Accepted submissions will have the opportunity to present their work and demonstrate their prototype live during demonstration sessions.

Careers Fair - Academia: is a channel to prepare for the future of academic career for younger academic enthusiasts and advertise new and upcoming research initiatives with academic open positions to a large audience for established academics. Interested established academics are invited to submit a 1-page abstract description of their new research plans and the respective open position(s). Accepted submissions will have the opportunity to present their research openings. They are also invited to post a flyer of their opening(s) on the “Jobs Wall” and HiPEAC portal.

Submission deadline is 31 January 2025.
For more information, please contact:
Angeliki Kritikakou (IRISA, FR)
Nima Tahernijad (Heidelberg University, DE)
ypp-academia@date-conference.com

SUBMISSION KEY DATES

D, A, T and E Papers:

15 September 2024 (abstracts)
22 September 2024 (full papers)
19 November 2024 (notification of acceptance)
17 January 2025 (camera-ready papers)
7 February 2025 (paper presentation videos)

Late Breaking Results Papers:

1 December 2024 (papers)
10 January 2025 (notification of acceptance)
31 January 2025 (camera-ready papers)
7 February 2024 (paper presentation videos)

Special Initiative

“Autonomous Systems Design”:

9 November 2024 (abstracts)
16 November 2024 (full papers)
17 December 2024 (notification of acceptance)
17 January 2025 (camera-ready papers)
7 February 2025 (paper presentation videos)

Focus Session Proposals:

11 October 2024

Embedded Tutorials Proposals:

11 October 2024

Workshop Proposals:

11 October 2024

Multi-Partner Projects:

29 October 2024 (papers)
7 February 2025 (paper presentation videos)

Young People Programme:

PhD Forum: 1 December 2024
Careers Fair – Industry & Student Teams Fair,
Careers Fair – Academia & University Fair:
31 January 2025

Kindly note that all deadline days apply to anywhere on earth (AoE). Deadlines are strict and no extensions will be given.