Dear Colleague,

We proudly present the Advance Programme of **DATE 2020**. DATE combines the world's favourite electronic systems design and test conference with an international exhibition for electronic design, automation and test, from system-level hardware and software implementation right down to integrated circuit design.

The DATE conference will take place from 9 to 13 March 2020 at the AlpExpo congress centre in Grenoble, France.Grenoble has a great number of assets such as its manufacturing companies, renowned higher-education institutions and internationally-recognised research laboratories, that make it one of the largest technology and research centres in Europe.Grenoble is the key European semiconductor site with more than 200 companies in micro/nano technologies and embedded software, including 100 start-ups and 90 SMEs, offering the working environment for 38,000 people.

Out of a total of 748 paper submissions received, a large share (39%) is coming from authors in Europe, 27% of submissions are from the Americas, 33% from Asia, and 1% from the rest of the world. Submissions involved more than 2400 authors from 45 different countries, a distribution that clearly demonstrates DATE's international character, global reach and impact.

For the 23rd year in a row, DATE has prepared an exciting technical programme. With the help of the 328 members of the Technical Programme Committee, who carried out 3014 reviews (mostly four reviews per submission), 194papers (26%) were finally selected for regular presentation and 82 additional ones (cumulatively 37%, including all papers) for interactive presentation.

On the first day of the DATE week, **six in-depth technical tutorials** on the main topics of DATE as well as **one industry hands-on tutorial** will be given by leading experts in their respective fields. The topics cover Early Reliability Analysis in Microprocessor Systems, AI Chip Technologies and DFT Methodologies, Data Analytics for Scalable Computing Systems Design, Security in the Post-Quantum Era, HW/SW codesign of Heterogeneous Parallel dedicated Systems, Evolutionary computing for EDA, and the Deployment of deep learning networks on FPGA (Mathworks).

The first day of the conference will close with the **PhD Forum**, where 32 selected students who have completed their PhD thesis or are about to, can showcase their work to the academia and the industrial community.

During the Opening Ceremony on Tuesday, **plenary keynote lectures** will be given by Philippe Magarshack, Corporate Vice President at ST Microelectronics, and Luca Benini, chair of digital Circuits and Systems at ETH Zurich and Professor at University of Bologna. On the same day, the **Executive Track** offers hot-topic presentations given by executive speakers from companies leading the design and automation industry. Furthermore, a talk by Catherine Schuman from Oak Ridge National Laboratory, will give an overview of the history of neuromorphic computing and will present the current state of research in the field.

The main conference programme from Tuesday to Thursday includes 55 technical sessions organized in parallel tracks from the four areas

D – Design Methods & Tools

A – Application Design

T – Test and Dependability

E – Embedded and Cyber-physical Systems

and from several special sessions on Hot Topics, such as Memories for Emerging Applications, Architectures for Emerging Technologies (Quantum Computing, Edge Computing, Neural Algorithms, In-Memory Computing, Bio-Inspired Adaptive Hardware), Hardware Security, 3D Integration and Logic Reasoning for Functional ECO, as well as results and lessons learned from European projects. Additionally, there are numerous Interactive Presentations which are organised into five IP sessions.

Two Special Days in the programme will focus on areas bringing new challenges to the system design community: **Embedded AI and Silicon Photonics**. Each of the Special Days will have a full programme of keynotes, panels, tutorials and technical presentations.

The Special Day on **Embedded Artificial Intelligence** will cover new trends in cognitive algorithms, hardware architectures, software designs, emerging device technologies as well as the application space for deploying AI into edge devices. The topics will include technical areas to enable the realization of embedded artificial intelligence on specialized chips, such as bio-inspired chips, with and without self-learning capabilities, special low-power accelerator chips for aiding in vector/matrix-based computations, convolution and deep-net chips for possible machine learning, cognitive, and perception applications in health, automotive, robotics, or smart cities applications. A particular highlight of the day will be the luncheon keynote given by Jim Tung, who will present Mathworks' vision on how to leverage Embedded Intelligence in Industry.

The Special Day on **Silicon Photonics** will focus on data communication via photonics for both data centre/high-performance computing and optical networks on chip applications. Industrial and academic experts will highlight recent advances on devices and integrated circuits. The sessions will also feature talks on design automation and link-level simulations. Other applications of silicon photonics such as sensing and optical compute will also be discussed. As a highlight of the special day, Joachim Schultze from DZNE will talk about bottlenecks and challenges for HPC in medicinal and genomics research during his luncheon keynote.

A timely Special Initiative "Autonomous Systems Design – Automated Vehicles and beyond" is held onThursday and Friday, consisting of reviewed and invited papers as well as working sessions.

To inform attendees on commercial and design-related topics, there will be a full programme in the **Exhibition Theatre**, which will combine presentations by exhibiting companies, best-practice reports by industry leaders on their latest design projects and selected conference special sessions. A special industrial keynote will be given by Philippe Quinio, STMicroelectronics.

The conference is complemented by an **exhibition, running for three days (Tuesday – Thursday),** including exhibition booths from companies, and collaborative research initiatives among which, also EU project presentations.The exhibition provides a unique networking opportunity and is the perfect venue for industries to meet University Professors to foster University Programmes and especially for PhD Students to meet future employers.

On Friday, **eight full-day workshops** cover several hot topics from areas like Autonomous Systems Design, Optical/Photonic Interconnects, Computation-In-Memory, Open-Source Design Automation, Stochastic Computing for Neuromorphic Architectures, Hardware Security, Quantum Computing and Imaging Solutions.

For further information, please visit: www.date-conference.com

We wish you an exciting and memorable DATE 2020, a successful exhibition visit and an entertaining DATE party on Wednesday evening.

DATE 2020
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