Following very successful previous editions held in different venues since 2002, the 21st IEEE ISPDC conference will be hosted by the University of Basel in the city of Basel, Switzerland.

The goal of the **21st IEEE International Symposium on Parallel and Distributed Computing** (ISPDC 2022) is to bring together researchers, engineers, and practitioners for the purpose of sharing their experiences in the development of new algorithms, applications, architectures for parallel and distributed computing, as well as modeling and simulation, visualization, and data analytics.

Yours sincerely,

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ISPDC 2022
21st IEEE International Symposium on
Parallel and Distributed Computing

July 11-13, 2022

Alte Universität, Hörsaal -101
Rheinsprung 9, CH-4051 Basel

Monday, July 11, 2022 (Day 1)

08:00 Registration
08:45 **ISPDC 2022 Welcome Remarks** – Florina Ciorba, University of Basel, Switzerland
09:00 **Opening word** – Prof. Dr. Torsten Schwede
Vice-President of Research, University of Basel, Switzerland
09:15 **[Keynote talk] Easy Development and Execution of Workflows with eFlows4HPC**
Rosa M. Badia, Barcelona Supercomputing Center, Spain

10:15 [Break] Coffee (provided)

Session 1: Large-scale distributed systems – Chair Ahmed Eleliemy
10:40 [Full paper] Deep Heuristic for Broadcasting in Arbitrary Networks
Hovhannes Harutyunyan, Narek Hovhannisyan, and Rakshit Magithiya
11:10 [Full paper] FlexiShard: a Flexible Sharding Scheme for Blockchain based on a Hybrid Fault Model,
Tirathraj Ramburn, and Dhrubajyoti Goswami
11:40 [Oral communication] Maestro: A Middleware for Data Orchestration in Scientific Workflows
Ali Mohammed, Christopher Haine, and Utz-Uwe Haus
12:00 [Oral communication] Real-time scheduling mechanisms for cost-efficient power consumption
strategies, Bogdan-Costel Mocanu and Florin Pop

12:20 [Break] Lunch (provided)

13:30 **[Keynote talk] Simulating Our Universe: Leveraging Present and Future Supercomputing Systems**
Joachim Stadel, University of Zurich, Switzerland

Session 2: Acceleration – Chair Hovhannes Harutyunyan
14:30 [Full paper] Online Event Selection for Mu3e using GPUs
Valentin Henkys, Bertil Schmidt, and Niklaus Berger
15:00 [Full paper] Cuckoo Node Hashing on GPUs
Muhammad Javed, Hao Zhou, David Troendle, and Byunghyun Jang
15:30 [Full paper] Coarse-Grained Floorplanning for Accelerating Quantized Neural Networks on Multi-Die
FPGAs, Danielle Tchuinkou Kwadjo, Erman Nghonda, and Christophe Bobda

Tuesday, July 12, 2022 (Day 2)

09:00 **[Keynote talk] The Road to a Universal Internet Machine**
Rachid Guerraoui, École Polytechnique Fédérale de Lausanne, Switzerland

10:00 [Break] Coffee (provided)

Session 3: Parallel, distributed computing, machine learning, and security – Chair Sheikh Ghafoor
10:20 [Full paper] A type system to avoid runtime errors for Multi-ML
Frédéric Gava, Victor Allombert, and Julien Tesson
10:50 [Full paper] Estimating the Impact of Communication Schemes for Distributed Graph Processing
Tian Ye, Sanmukh R. Kuppannagari, Cesar A. F. De Rose, Sasindu Wijeratne, Rajgopal Kannan, and
Viktor Prasanna
11:20 [Full paper] A scalable algorithm for homomorphic computing on multi-core clusters
Frédéric Gava and Léa Bayati
11:50 [Oral communication] DAPHNE: An Open and Extensible System Infrastructure for Integrated Data
Analysis Pipelines, Patrick Damme
12:10 [Short paper] TrustS: Probability based trust management system in smart cities
Bogdan-Costel Mocanu, Gabriel Cosmin Apostol, Dragoș Rădulescu, and Cristina Șerbănescu

12:30 [Break] Lunch (provided)

Tuesday, July 12, 2022 (Day 2) – continued

13:30 **[Keynote talk] Green vs. Exascale HPC : Carbon-neutral site operations, energy efficiency and**
overall sustainability (sponsored by HPE), Utz-Uwe Haus, Head of the HPE HPC/AI EMEA Research
Lab

Session 4: High performance computing – Chair Bogdan-Costel Mocanu
14:30 [Full paper] APPFIS: An Advanced Parallel Programming Framework for Iterative Stencil Based
Scientific Applications in HPC Environments, Md Bulbul Sharif and Sheikh Ghafoor
15:00 [Oral communication] A nonblocking approach for the computation of the Laplacian
Julio Sanchez-Curto and Pedro Chamorro-Posada
15:20 [Short paper] A hybrid clustering algorithm for high-performance edge computing devices
Giuliano Laccetti, Marco Lapegna, and Diego Romano

18:00 **[Conference dinner] Boat trip on the Rhine** (included in the registration)

Wednesday, July 13, 2022 (Day 3)

09:00 **[Distinguished keynote talk]: Why is it so Hard to Make Self-driving Cars?**
Joseph Sifakis, Verimag Laboratory, Grenoble, France, 2007 Turing Award Winner

10:00 [Break] Coffee (provided)

Session 5: Program and performance analysis – Chair Josef Spillner
10:30 [Full paper] Performance Comparison of Speculative Taskloop and OpenMP-for-loop Thread Level
Speculation on Hardware Transactional Memory, Juan Salamanca
11:00 [Full paper] Analysis and Mitigation of Soft-Errors on High Performance Embedded GPUs
Luca Sterpone, Sarah Azimi, Corrado De Sio, and Filippo Parisi
11:30 [Full paper] Performance Modeling of Scalable Resource Allocations with the Imperial PEPA
Compiler, William Sanders, Srishti Srivastava, and Ioana Banicescu

12:15 [Break] Lunch (provided)

Session 6: Networking, distributed computing, and scalability– Chair Frédéric Gava
13:30 [Full paper] Investigating TCP/MPTCP Support for Drop Computing in User Space Network Stacks,
Cosmin Stoica, Radu-Ioan Ciobanu, and Ciprian Dobre
14:00 [Full paper] ZPAXOS: An asynchronous BFT PAXOS with a leaderless synchronous group
Dinesh Amarasekera and Nalin Ranasinghe
14:30 [Oral communication] FARGO: Federated leARninG for human mobility
Radu-Ioan Ciobanu and Ciprian Dobre

14:50 [Break] Coffee (provided)

Session 7: Middleware – Chair Ciprian Dobre
15:30 [Full paper] Workload Deployment and Configuration Reconciliation at Scale in Kubernetes-Based
Edge-Cloud Continuums, Hass Daniel and Josef Spillner
16:00 [Full paper] Optimizing the RJMS of an Academic HPC & Research Computing Facility
Sebastien Varrette, Emmanuel Kieffer, and Frederic Pinel
16:30 [Full paper] Communication-Efficient Cluster Scalable Genomics Data Processing Using Arrow Flight,
Tanveer Ahmad, Chengxin Ma, and Zaid Al Ars

17:00 **ISPDC 2022 Best Paper Award and Closing Remarks** – Florina Ciorba, University of Basel, Switzerland
Invitation to ISPDC 2023 in Bucharest, Romania – Ciprian Dobre, University Politehnica Bucharest,
Romania