

HPCS 2019 Sessions – Preliminary

(Subject to Changes)

(Underlined name is the official paper presenter. No further changes are allowed unless prior approval is obtained from the program chairs in due time. If a presenter has an emergency and cannot present, authors should make sure to have an alternate plan and let the program chairs know immediately of any such emergency and change. No on-site changes will be approved. Papers without presenters will be treated as no-shows.)

MONDAY, JULY 15, 2019

ALL-DAY TUTORIALS (please see the web site for details about tutorials. More will follow in the program.)

CHAIRS: Bartosz Balis, Frédéric Loulergue

TUTORIAL PAPERS

T1: Introduction to the Tezos Blockchain

Victor Allombert, Mathias Bourgoïn, Julien Tesson
Nomadic Labs, Paris, France

MONDAY, JULY 15, 2019

HIGH LEVEL PARALLELISM, LANGUAGES, LIBRARIES, PROGRAMMING ENVIRONMENTS AND TOOLS

13:30-15:30 MONDAY, JULY 15, 2019

ROOM: Marconi Suite

CHAIRS: TBA

- *1. Simplifying the Distributed Multi-GPU Programming of a Hyperspectral Image Registration Algorithm**
Jorge Fernandez-Fabeiro, Arturo Gonzalez-Escribano, Diego R. Llanos
Universidad de Valladolid, Valladolid, Spain
- 2. An Incremental Parallel PGAS-based Tree Search Algorithm**
Tiago Carneiro¹, Nouredine Melab²
¹INRIA Lille - Nord Europe, Lille, France; ²Universite de Lille, CNRS/CRIStAL, INRIA Lille - Nord Europe, Lille, France
- 3. Using A High-level Parallel Programming Language for GPU-accelerated Tomographic Reconstruction**
Mette Bjerg Lindhøj^{1,2}, Troels Henriksen¹, Lærke Pedersen¹, Jon Sporning¹
¹University of Copenhagen, Copenhagen, Denmark; ²Center for Functional and Diagnostic Imaging and Research, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark
- 4. Fast Multidimensional Binary Image Processing with OpenCL**
Daniel Oliveira Dantas, Helton Danilo Passos Leal
Universidade Federal de Sergipe, Sao Cristovao-SE, Brazil
- 5. PySke: Algorithmic Skeletons for Python**
Jolan Philippe, Frederic Loulergue
School of Informatics Computing and Cyber Systems, Northern Arizona University, Arizona, USA

HIGH PERFORMANCE MOBILE AND WIRELESS NETWORKS AND SYSTEMS (MCWN 2019)

15:50-17:20 MONDAY, JULY 15, 2019

ROOM: Marconi Suite

CHAIRS: Gabriel-Miro Muntean, Irina Tal, Ramona Trestian, Ioan-Sorin Comşa,

1. RA3D: Reputation-based Adaptive 3D Video Delivery in Heterogeneous Wireless Networks

Ting Bi¹, Longhao Zou², Shengyang Chen¹, Zehou Zhang¹, Ramona Trestian³, Gabriel-Miro Muntean¹

¹School of Electronic Engineering, Dublin City University, Dublin, Ireland; ²PCL Research Center of Networks and Communications, Southern University of Science and Technology, Shenzhen, China; ³School of Science and Technology, Middlesex University, U.K.

2. Multi-Container Application Migration with Load Balanced and Adaptive Parallel TCP

Wongsatorn Thongthaworn, Prapaporn Rattanathamrong

Faculty of Science and Technology, Thammasat University, Phatumthani, Thailand

3. Fall Detection with Privacy as Standard

Dylan Kelly, Declan Delaney, Avishek Nag

School of Electrical and Electronic Engineering, University College Dublin, Dublin, Ireland

4. Shared Resource Allocation for Mobile Users in Multi-Tier Heterogeneous Wireless Network

Chetna Singhal, Anshul Varma

Indian Institute of Technology - Kharagpur, India

HIGH PERFORMANCE INTERCONNECTION NETWORKS AND INTERCONNECTS 17:30-19:00 MONDAY, JULY 15, 2019

ROOM: Marconi Suite

CHAIRS: Misbah Mubarak, Noah Wolfe, Khalid Zine-Dine,

1. Hardware Acceleration of Kalman Filter for Leak Detection in Water Pipeline Systems using Wireless Sensor Network

Fatma Karray^{1,2}, Melek Maalaoui², Abdulfattah M. Obeid³, Alberto Garcia-Ortiz⁴, Mohamed Abid^{1,2}

¹National Engineering School of Sfax, Sfax, Tunisia; ²Digital Research Center of Sfax, Sfax, Tunisia; ³King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia; ⁴Institute of Electrodynamics and Microelectronics (ITEM.ids), Bremen, Germany

2. CAVisAP: Context-Aware Visualization of Outdoor Air Pollution with IoT Platforms

Meruyert Nurgazy¹, Arkady Zaslavsky¹, Prem Prakash Jayarman², Sylvain Kubler⁴, Karan Mitra³, Saguna Saguna³

¹Deakin University, Melbourne, Australia; ²Swinburne University, Melbourne, Australia; ³Lulea University of Technology, Skelleftea, Sweden; ⁴Universite de Lorraine, Vandoeuvre-les-Nancy, France

3. A Weighted Centroid Localization Algorithm for Wireless Sensor Networks

Abdelali Hadir¹, Khalid Zine-Dine¹, Mohamed Bakhouya²

¹Chouaib Doukkali University, FS, El Jadida, Morocco; ²International University of Rabat, Morocco

4. INV.HPINI. TBA

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HPCS 2019 SOCIAL EVENT I – CONFERENCE RECEPTION

19:30 - 21:30 TUESDAY, JULY 16, 2019

ROOM: Congregate in Lobby

(PLEASE CONFIRM YOUR ATTENDANCE - Required)

HOSTS: TBA

TUESDAY, JULY 16, 2019

HPCS 2019 CONFERENCE OPENING SESSION

08:10-09:00 TUESDAY, JULY 16, 2019

ROOM: Tara Suite

CHAIRS: Conference General Chairs

Guest Speakers: TBA

HPCS 2019 TUESDAY KEYNOTE I

09:00-10:30 TUESDAY, JULY 16, 2019

ROOM: Tara Suite

CHAIR: TBA

**SYNERGY OF PARALLEL COMPUTING, OPTIMIZATION AND SIMULATION
(PaCOS 2019)**

10:50-13:00 TUESDAY, JULY 16, 2019

ROOM: Tara Suite

CHAIRS: Nouredine Melab, Bernabé Dorronsoro, Jan Gmys, Tiago Carneiro Pessoa

- 1. Surrogate Modelling for Efficient Discovery of Emergent Population Dynamics**
James Pyle, Mozhgan Kabiri Chimeh, Paul Richmond
The University of Sheffield, U.K.
- 2. Surrogate-Assisted Particle Swarm Optimization using Space Reduction and Global Search**
Peng Zhang, Shu-You Zhang, Guodong Yi, Lemiao Qiu
Zhejiang University, Hangzhou, China
- 3. Surrogate-Assisted Optimization for Multi-stage Optimal Scheduling of Virtual Power Plants**
Maxime Gobert¹, Jan Gmys¹, Jean-François Toubeau¹, François Vallée¹, Nouredine Melab², Daniel Tuytens¹
¹University of Mons, Belgium; ²INRIA Lille – Nord Europe / CRIStAL, University of Lille, France
- 4. Analyzing the Energy Consumption of Sequential and Parallel Metaheuristics**
Amr Abdelhafez, Gabriel Luque, Enrique Alba
University of Malaga, Malaga, Spain
- 5. A Robust Approach to the Cell Switch-off Problem in 5G Ultradense Networks**
Francisco Luna¹, Pablo H. Zapata-Cano¹, Juan F. Valenzuela-Valdés², Pablo Padilla²
¹University of Malaga, Spain; ²University of Granada, Spain

**ADVANCES IN PARALLEL PROGRAMMING MODELS AND FRAMEWORKS FOR THE
MULTI-/MANY-CORE ERA (APPM 2019)**

10:50-13:00 TUESDAY, JULY 16, 2019

ROOM: Graham Bell Suite

CHAIRS: Ben Juurlink, Giuseppe Tagliavini, Jeronimo Castrillon, Biagio Cosenza

- 1. Investigating Performance and Potential of the Parallel STL Using NAS Parallel Benchmark Kernels**
Nicco Mietzsch, Karl Fuerlinger
Ludwig Maximilian University of Munich, Munich, Germany

2. Configuring Graph Traversal Applications for GPUs: Analysis of Implementation Strategies and their Correlation with Graph Characteristics

Federico Busato, Nicola Bombieri
University of Verona, Verona, Italy

3. Reducing Energy Consumption of HMAC Applications on Heterogeneous Platforms

Sebastian Litzinger, Oliver Körber, Jörg Keller
FernUniversität in Hagen, Hagen, Germany

4. A Performance Analysis of Vector Length Agnostic Code

Angela Pohl, Mirko Greese, Biagio Cosenza, Ben Juurlink
Technische Universität Berlin, Berlin, Germany

5. Bridging a Data-Flow Execution Model to a Simple Programming Model

Roberto Giorgi, Marco Procaccini
University of Siena, Siena, Italy

DEEP LEARNING, INTELLIGENCE ALGORITHMS, NEURAL NETWORKS AND APPLICATIONS

10:50-13:00 TUESDAY, JULY 16, 2019

ROOM: Baird Suite

CHAIRS: TBA

1. Modeling Interprocessor Communication and Performance Scalability for Distributed Deep Learning Systems

Yi-Hong Wang¹, Cheng-Yueh Liu¹, Chen-Pang Lee¹, Chia-Heng Tu², Shih-Hao Hung¹

¹National Taiwan University, Taipei, Taiwan; ²National Cheng Kung University, Tainan, Taiwan

2. Performance-Oriented Neural Architecture Search

Andrew Anderson, Jing Su, Rozenn Dahyot, David Gregg
Trinity College Dublin, Dublin, Ireland

3. Context-based Multi-stage Offline Handwritten Mathematical Symbol Recognition using Deep Learning

Sui Kun Guan, Melody Moh, Teng-Sheng Moh
San Jose State University, San Jose, California, USA

4. Performance Counters based Power Modeling of Mobile GPUs using Deep Learning

Nadjib Mammeri, Markus Neu, Sohan Lal, Ben Juurlink
Technische Universität Berlin, Berlin, Germany

5. Short Video Datasets Show Potential for Outfits in Augmented Reality

Andrew Jong, Teng-Sheng Moh
San Jose State University, San Jose, California, USA

HIGH PERFORMANCE I/O AND MEMORY SYSTEMS

10:50-13:00 TUESDAY, JULY 16, 2019

ROOM: Marconi Suite

CHAIRS: TBA

***1. Evaluating the Memory Architecture of Next-Generation FPGA-SoCs for HPC**

Matthias Goebel, Kai Norman Clasen, Robert Drehmel, Ben Juurlink
Technische Universität Berlin, Berlin, Germany

***2. On Server-side File Access Pattern Matching**

Francieli Zanon Boito¹, Ramon Nou², Laercio Lima Pilla³, Jean Luca Bez⁴, Jean-Francois Mehaut¹, Toni Cortes^{2,5}, Philippe O.A. Navaux⁴

¹Universite Grenoble Alpes, Inria, CNRS, Grenoble INP*, LIG, Grenoble, France; ²Barcelona Supercomputing Center, Barcelona, Spain; ³LRI, Universite Paris-Sud – CNRS, Orsay, France; ⁴Institute of Informatics, Federal University of Rio Grande do Sul, Porto Alegre, Brazil; ⁵Universitat Politecnica de Catalunya, Barcelona, Spain

3. Open-Source Shared Memory Implementation of the HPCG Benchmark: Analysis, Improvements and Evaluation on Cavium ThunderX2

Daniel Ruiz¹, Filippo Spiga¹, Marc Casas², Marta Garcia-Gasulla², Filippo Mantovani²

¹Arm Ltd., Cambridge, U.K.; ²Barcelona Supercomputing Center-CNS, Barcelona, Spain

4. Learning Low-Wastage Memory Allocations for Scientific Workflows at IceCube

Carl Witt¹, Jakob van Santen², Ulf Leser¹

¹Humboldt-Universitat zu Berlin, Berlin, Germany; ²Deutsches Elektronen-Synchrotron, Zeuthen, Germany

5. Why Applications Are Coupled to I/O and How the Scenery Can Be Changed

Fotis Nikolaidis^{1,2}, Soraya Zertal², Thomas Leibovici¹, Athanasios Kiatipis³

¹CEA/DAM/DIF, French Alternative Energies and Atomic Energy Commission, France; ²Li-PaRAD, University of Versailles, France; ³Fujitsu Technology Solutions GmbH, Germany

HPCS 2019 TUESDAY KEYNOTE II

14:00-15:30 TUESDAY, JULY 16, 2019

ROOM: Tara Suite

CHAIR: TBA

HPCS 2019 PANEL I: Future Outlook

15:50-17:10 TUESDAY, JULY 16, 2019

ROOM: Tara Suite

MODERATORS: TBA

HPCS 2019 POSTERS SESSION 17:10-18:20 TUESDAY, JULY 16, 2019

ROOM: O'Carolan Suite

CHAIRS: Yuri Demchenko, Claudia Fohry, Luca Spalazzi,

(All poster papers and posters must be formally presented in this session when called on. If presenter is not available, the manuscript will be treated as a no-show. All posters will be posted during the entire time of the conference and authors can informally present during other times on the three days of the conference.)

POSTER PAPERS

***PP01. Open Data Market Architecture and Functional Components**

Yuri Demchenko¹, Reggie Cushing¹, Wouter Los¹, Paola Grosso¹, Cees de Laat¹, Leon Gommans²

¹University of Amsterdam, Amsterdam, The Netherlands; ²Air France – KLM, The Netherlands

***PP02. Auto-tuning of IO Accelerators Using Black-box Optimization**

Sophie Robert^{1,2}, Soraya Zertal¹, Gaël Goret²

¹Li-PaRAD, University of Versailles, France; ²Atos BDS R&D Data Management, France

***PP03. Discriminating Accurate Results In Nonlinear Models**

Oriol Tintó Prims^{1,2}, Mario C. Acosta¹, Miguel Castrillo¹, Stella Valentina Paronuzzi Ticco¹, Kim Serradell¹, Ana Cortés², Francisco J. Doblas-Reyes^{1,3}

¹Earth Sciences Department, Barcelona Supercomputing Center, Spain; ²Computer Architecture and Operating Systems, Universitat Autònoma de Barcelona, Spain; ³Catalan Institution for Research and Advanced Studies (ICREA), Spain

***PP04. Parallel Algorithm for Prediction of Variables in Simultaneous Equation Models**

Oscar Gomez, Jose J. Lopez-Espin, Antonio Peñalver
Miguel Hernandez University, Elche, Spain

***PP05. Modeling Traffic Workloads in Data-center Network Simulation Tools**

Luis Gonzalez-Naharro¹, Jesus Escudero-Sahuquillo¹, Pedro J. Garcia¹, Francisco J. Quiles¹, Jose Duato²,
Wenhao Sun³, Xiang Yu³, Hewen Zheng³

¹University of Castilla-La Mancha, Spain; ²Universitat Politècnica de Valencia, Spain; ³Huawei Technologies Co., Ltd., China

RESEARCH POSTERS

RP01. Verification-as-a-Service for Parameter Assessment

Luca Spalazzi, Francesco Spegni
Universita` Politecnica delle Marche, Ancona, Italy

RP02. Towards Automatically Optimizing PySke Programs

Jolan Philippe, Frédéric Loulergue
School of Informatics Computing and Cyber Systems, Northern Arizona University, Arizona, USA

RP03. Impact of the Checkpoint on the Scalability of the Parallel Applications

Betzabeth León, Daniel Franco, Dolores Rexachs, Emilio Luque
Universitat Autònoma de Barcelona, Barcelona, Spain

RP04. CRESCO ENEA HPC Clusters: A Working Example of a Multifabric GPFs Spectrum Scale Layout

Francesco Iannone¹, Fiorenzo Ambrosino¹, Giovanni Bracco¹, M. De Rosa¹, Agostino Funel¹, Guido Guarnieri¹,
Silvio Migliori¹, Filippo Palombi¹, P. Procacci², Giovanni Ponti¹, Giuseppe Santomauro¹

¹ENEA- Energy Technologies Department – ICT Division – HPC Laboratory – Lungotevere Thaon de Ravel, Rome, Italy; ²Dipartimento di Chimica, Università di Firenze, Sesto Fiorentino, Italy

INDUSTRIAL POSTERS

1. TBA

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HPCS 2019 SOCIAL EVENT II – PAT LIDDY GUIDED WALKING TOUR

18:35 - 23:00 TUESDAY, JULY 16, 2019

ROOM: Congregate in Lobby (Please register for this if interested. Required)

HOSTS: TBA

WEDNESDAY, JULY 17, 2019

FINE-GRAINED PARALLELISM AND ARCHITECTURES

8:00-10:10 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIRS: TBA

- 1. Analyzing the Data Behavior of Parallel Application for Extracting Performance Knowledge**
Felipe Tirado^{1,2}, Alvaro Wong¹, Dolores Rexachs¹, Emilio Luque¹
¹Universidad Autonoma de Barcelona, Barcelona, Spain; ²Universidad Catolica del Maule, Talca, Chili
- 2. Modeling Algorithmic Skeletons for Automatic Parallelization Using Template Metaprogramming**
Alexis Pereda, David R.C. Hill, Claude Mazel, Bruno Bachelet
Université Clermont Auvergne, CNRS, LIMOS, Clermont-Ferrand, France
- 3. Forest Fire Spread Simulation on Low Consumption GPUs: a Quantitative Performance Analysis**
Carlos Carrillo, Tomàs Margalef, Antonio Espinosa, Ana Cortés
Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Spain
- 4. Thin-Threads: An Approach for History-Based Monte Carlo on GPUs**
Ryan Bleile^{1,2}, Patrick Brantley¹, Hank Childs², Shawn Dawson¹, Micheal Scott McKinley¹, Matthew O'Brien¹, David Richards¹
¹Lawrence Livermore National Laboratory, Livermore, California, USA; ²School of Computer and Information Science, University of Oregon, Eugene, Oregon, USA
- *5. Multi-threading Semantics for Highly Heterogeneous Systems Using Mobile Threads**
Peter M. Kogge
University of Notre Dame, Notre Dame, Indiana, USA

MODELING, SIMULATION, AND EVALUATION TECHNIQUES AND SOLUTIONS

8:00-10:10 WEDNESDAY, JULY 17, 2019

ROOM: Graham Bell Suite

CHAIRS: TBA

- 1. Fix Sort: A Good Strategy to Perform Segmented Sorting**
Rafael F. Schmid¹, Edson N. Caceres²
¹Federal Institute of Mato Grosso do Sul Campo Grande, MS, Brazil; ²Federal University of Mato Grosso do Sul Campo Grande, MS, Brazil
- 2. Simulation and Computational Analysis of Multiscale Graph Agent-based Tumor Model**
Ghazal Tashakor, Remo Suppi
Universitat Autnoma de Barcelona, Barcelona, Spain
- 3. Staged Deployment of Interactive Multi-application HPC Workflows**
Wouter Klijn¹, Sandra Diaz-Pier¹, Abigail Morrison^{1,2,3}, Alexander Peyser¹
¹Jülich Supercomputing Centre (JSC), Institute for Advanced Simulation, Forschungszentrum Jülich GmbH, JARA, Jülich, Germany; ²Theoretical Neuroscience & Institute of Neuroscience and Medicine (INM-6), Institute for Advanced Simulation, Forschungszentrum Jülich and JARA, Jülich, Germany; ³Institute of Cognitive Neuroscience, Faculty of Psychology, Ruhr-University Bochum, Bochum, Germany
- *4. Multi-Parameter Performance Modeling using Symbolic Regression**
Sai P. Chenna, Greg Stitt, Herman Lam
University of Florida - Gainesville, Florida, USA
- 5. Repeatability, Reproducibility, Computer Science and High Performance Computing: Stochastic Simulations can be Reproducible too...**
David R.C. Hill
Université Clermont Auvergne, CNRS, LIMOS, ISIMA, Aubière, France

AUTONOMIC AND HIGH PERFORMANCE COMPUTING (AHPC 2019)

8:00-10:10 WEDNESDAY, JULY 17, 2019

ROOM: Baird Suite

CHAIRS: Françoise Baude, Nicola Capodieci, Antonio Filieri, Eric Rutten,

1. Enhanced Autonomous Resource Selection Algorithm for Cooperative Awareness in Vehicular Communication

Brahmjit Singh, Sandeepika Sharma

National Institute of Technology (NIT) - Kurukshetra, Haryana, India

***2. Approximating Memory-bound Applications on Mobile GPUs**

Daniel Maier, Nadjib Mammeri, Biagio Cosenza, Ben Juurlink

Technische Universität Berlin, Berlin, Germany

3. Autonomic Management Experiences in Structured Parallel Programming

Marco Danelutto, Daniele De Sensi, Gabriele Mencagli, Massimo Torquati

University of Pisa, Pisa, Italy

4. Q-Learning Inspired Self-tuning for Energy Efficiency in HPC

Andreas Gocht, Robert Schöne, Mario Bielert

Center for Information Services and High Performance Computing, Technische Universität Dresden, Dresden, Germany

5. INV.AHPC. TBA

Gregory O'Hare

University College Dublin, Dublin, Ireland

HIGH PERFORMANCE NETWORK PLATFORMS AND DISTRIBUTED COMPUTING SYSTEMS

8:00-10:10 WEDNESDAY, JULY 17, 2019

ROOM: Marconi Suite

CHAIRS: TBA

1. Scalability of Hybrid SpMV on Intel Xeon Phi Knights Landing

Brian A. Page, Peter M. Kogge

University of Notre Dame, Indiana, USA

2. DP2: A Highly Parallel Range Join for Genome Analysis on Distributed Computing Platform

Aman Sinha, Bo-Cheng Lai

National Chiao Tung University, Hsinchu City, Taiwan

3. Applying ADM and OpenFlow to Build High Availability Networks

James T. Yu

DePaul University, Chicago, Illinois, USA

4. Automatic Configuration of OpenFlow in Wireless Mobile Ad hoc Networks

Sachin Sharma¹, Avishek Nag², Paul Stynes¹, Maziar Nekovee³

¹National College of Ireland, Dublin, Ireland; ²University College Dublin, Dublin, Ireland; ³University of Sussex, Sussex, U.K.

5. rDLB: A Novel Approach for Robust Dynamic Load Balancing of Scientific Applications with Independent Tasks

Ali Mohammed, Aurelien Cavelan, Florina M. Ciorba

University of Basel, Basel, Switzerland

HPCS 2019 WEDNESDAY KEYNOTE I

10:30-12:00 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIR: TBA

HPCS 2019 DEMO I: Salzmann

12:00-12:30 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIRS: TBA

HPCS 2019 DEMO II: Peccerillo

12:30-13:00 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIRS: TBA

THE 6TH WORKSHOP ON HIGH PERFORMANCE COMPUTING BENCHMARKING AND OPTIMIZATION (HPBench 2019) - I

14:00-16:05 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIRS: Samar Aseeri, Luigi Iapichino, Laurent Lefèvre

1. On the Energy Consumption and Accuracy of Multithreaded Embedded Runge-Kutta Methods

Thomas Rauber¹, Gudula Rünger²

¹University Bayreuth, Bayreuth, Germany; ²Chemnitz University of Technology, Chemnitz, Germany

2. Using On-Demand File Systems in HPC Environments

Mehmet Soysal¹, Marco Berghoff¹, Thorsten Zirwes¹, Marc-André Vef², Sebastian Oeste³, Andre Brinkmann², Wolfgang E. Nagel³, Achim Streit¹

¹Karlsruhe Institute of Technology, Karlsruhe, Germany; ²Johannes Gutenberg University, Mainz, Germany;

³Technische Universität Dresden, Dresden, Germany

3. Energy Efficiency Features of the Intel Skylake-SP Processor and Their Impact on Performance

Robert Schoene, Thomas Ilsche, Mario Bielert, Andreas Gocht, Daniel Hackenberg

ZIH, Technische Universität Dresden, Dresden, Germany

4. Assembly Micro-benchmark Generator for Characterizing Floating Point Units

Jean Pourroy¹, Patrick Demichel², Christophe Denis¹

¹CMLA-CNRS, ENS Paris-Sclay, Cachan, France; ²Hewlett Packard Enterprise, Grenoble, France

5. Evaluating the Marvell ThunderX2 Server Processor for HPC Workloads

Simon D. Hammond, Clayton Hughes, Michael J. Levenhagen, Courtenay T. Vaughan, Andrew J. Younge, Benjamin Schwaller, Michael J. Aguilar, Kevin T. Pedretti, James H. Laros

Center for Computing Research, Sandia National Laboratories, New Mexico, USA

OPTIMIZATION OF ENERGY EFFICIENT HPC & DISTRIBUTED COMPUTING SYSTEMS

14:00-16:05 WEDNESDAY, JULY 17, 2019

ROOM: Graham Bell Suite

CHAIRS: Nuno Roma, Luis Veiga

1. Extended Investigation of Performance-energy Trade-offs under Power Capping in HPC Environments

Adam Krzywaniak, Pawel Czarnul, Jerzy Proficz
Gdańsk University of Technology, Gdańsk, Poland

2. Energy-Optimal Configurations for Single-Node HPC Applications

Vitor R.G. Silva¹, Alex F.A. Furtunato², Kyriakos Georgiou³, Carlos A.V. Sakuyama¹, Kerstin Eder³, Samuel Xavier-de-Souza²

¹University of Mons, Mons, Belgium; ²Instituto Federal do Rio Grande do Norte, Natal, Brazil; ³University of Bristol, Bristol, U.K.

3. An Efficient Sorting Architecture for Area and Energy Constrained Edge Computing Devices

Amin Norollah¹, Zahra Kazemi², Hakem Beitollahi¹

¹Iran University of Science & Technology, Tehran, Iran; ²LCIS Laboratory, Grenoble Institute of Technology, Grenoble, France

4. Leveraging Energy-efficient Non-lossy Compression for Data-intensive Applications

Issam Rais¹, Daniel Balouek-Thomert², Anne-Cecile Orgerie³, Laurent Lefevre⁴, Manish Parashar²

¹The Arctic University of Norway, Tromsø, Norway; ²Rutgers University, New Jersey, USA; ³Inria, LIP, ENS Lyon, France; ⁴Universite Rennes, Inria, CNRS, IRISA, Rennes, France

5. Fixed-point Self-tuning CPU Performance Controller for Linux Kernel

Michał Getka¹, Michał Karpowicz²

¹Research and Academic Computer Network (NASK), Warsaw, Poland; ²Institute of Control and Computation Engineering, Warsaw University of Technology, Warsaw, Poland

**SPECIAL SESSION ON COMPILER ARCHITECTURE, DESIGN AND OPTIMIZATION
(CADO 2019)**

14:00-16:05 WEDNESDAY, JULY 17, 2019

ROOM: Baird Suite

CHAIRS: Philippe Clauss, Aravind Sukumaran-Rajam

1. Fast and Highly Optimizing Separate Compilation for Automatic Parallelization

Tohma Kawasumi, Ryota Tamura, Yuya Asada, Jixin Han, Hiroki Mikami, Keiji Kimura, Hironori Kasahara
Waseda University, Tokyo, Japan

***2. Introducing Streaming into Linear Algebra-based Sparse Graph Algorithms**

Peter M. Kogge, Neil A. Butcher, Brian A. Page
University of Notre Dame, Notre Dame, Indiana, USA

3. Polyhedral Model Guided Automatic GPU Cache Exploitation Framework

Abhishek Patwardhan¹, Ramakrishna Upadrasta²

¹NVIDIA India; ²Indian Institute of Technology - Hyderabad, Hyderabad, India

4. Polyhedral Tensor Schedulers

Benoît Meister¹, Eric Papenhausen², Benoît Pradelle³

¹Reservoir Labs, New York, New York, USA; ²Akai Kaeru, CEWIT Incubator, Stony Brook University, New York, USA; ³Silexica, Koln, Germany

5. Combining Static and Dynamic Analysis to Guide PGO for HPC Applications: A Case Study on Real-World Applications

Youenn Lebras¹, Andres S. Charif-Rubial², William Jalby¹

¹University of Versailles, Versailles, France; ²PeXL, Versailles, France

SPECIAL SESSION ON BIOLOGICALLY INSPIRED PARALLEL AND DISTRIBUTED COMPUTING, ALGORITHMS AND SOLUTIONS (BICAS 2019)

14:00-16:05 WEDNESDAY, JULY 17, 2019

ROOM: Marconi Suite

CHAIRS: Miguel Ángel Martínez-del-Amor, Agustín Riscos Núñez, Francis George Cabarle, Mario J. Pérez-Jiménez, Henry N. Adorna

- 1. Comparing Neuromorphic Systems by Solving Sudoku Problems**
Christoph Ostrau, Christian Klarhorst, Michael Thies, Ulrich Rueckert
CITEC, Bielefeld University, Bielefeld, Germany
- 2. End-to-End Learning of Graph Similarity**
Zhixin Chen, Mengxiang Lin, Deqing Wang
Beihang University, Beijing, China
- 3. Optimizations in CuSNP Simulator for Spiking Neural P Systems on CUDA GPUs**
Blaine Corwyn D. Aboy¹, Edward James A. Bariring¹, Jym Paul Carandang¹, Francis George C. Cabarle¹, Ren Tristan de La Cruz¹, Henry N. Adorna¹, Miguel Á. Martínez-Del-Amor²
¹University of the Philippines - Diliman, Quezon City, The Philippines, ²University of Seville, Seville, Spain
- 4. High Performance and Scalable Simulations of a Bio-inspired Computational Model**
Sandra Gómez-Canaval¹, Victor Mitrana¹, Mihaela Paun², Stanislav Vararuk¹
¹Universidad Politécnica de Madrid, Madrid, Spain; ²National Institute for Research and Development of Biological Sciences, Bucharest, Romania
- 5. INV.BICAS. TBA**
TBA
TBA

THE 6TH WORKSHOP ON HIGH PERFORMANCE COMPUTING BENCHMARKING AND OPTIMIZATION (HPBench 2019) - II

16:25-17:40 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

CHAIRS: Samar Aseeri, Luigi Iapichino, Laurent Lefèvre

- 6. Performance Analysis of Compressed Batch Matrix Operations on Small Matrices**
Brian Gravelle, Boyana Norris
University of Oregon, Oregon, USA
- 7. Benchmarking Summit and Sierra Supercomputers: From Proposal to Acceptance**
Jaime H. Moreno, Hui-Fang Wen
IBM Thomas J. Watson Research Center, Yorktown Heights, New York, USA
- 8. I/O Performance Evaluation of Large-Scale Deep Learning on an HPC System**
Minho Bae¹, Minjoong Jeong², Sangho Yeo¹, Sangyoon Oh¹, Oh-Kyoung Kwon²
¹Ajou University, Suwon, Republic of Korea; ²Korea Institute of Science and Technology Information (KISTI), Daejeon, Republic of Korea

ARCHITECTURE-AWARE SIMULATION AND COMPUTING

16:25-17:40 WEDNESDAY, JULY 17, 2019

ROOM: Graham Bell Suite

CHAIRS: TBA

1. Auto-tuning Methodology for Configuration and Application Parameters of Hybrid CPU+GPU Parallel Systems based on Expert Knowledge

Paweł Czarnul, Paweł Rosciszewski

Faculty of Electronics, Telecommunications and Informatics, Gdansk University of Technology, Gdansk, Poland

2. Towards Runtime Analytics in a Parallel Performance System

Allen D. Malony, Srinivasan Ramesh, Kevin Huck, Chad Wood, Sameer Shende

Oregon Advanced Computing Institute for Science and Society (OACISS), University of Oregon, Oregon, USA

3. Data Aware Simulation of Complex Systems on GPUs

Eidah Alzahrani^{1,2}, Anthony J. H. Simons¹, Paul Richmond¹

¹University of Sheffield, Sheffield, U.K.; ²Al Baha University, Al Baha, Saudi Arabia

SPECIAL SESSION ON HIGH PERFORMANCE MISSION CRITICAL SYSTEM DEVELOPMENT (HiPMiC 2019)

16:25-17:40 WEDNESDAY, JULY 17, 2019

ROOM: Baird Suite

CHAIRS: TBA

1. Probabilistic Runtime Guarantees for Statically Scheduled Taskgraphs with Stochastic Task Runtimes

Jörg Keller, Sebastian Litzinger, Wolfgang Spitzer

FernUniversität in Hagen, Hagen, Germany

2. Detecting Selected Network Covert Channels Using Machine Learning

Mehdi Chourib

FernUniversität in Hagen, Hagen, Germany

3. Resilience of Interdependent Critical Infrastructures: A Case Study in Quebec (Canada)

Benoit Robert, Yannick Hemond, Luisa Fernanda Salas Useche

Polytechnique Montreal, Montreal, Quebec, Canada

SPECIAL SESSION ON ADVANCES IN COMPUTATIONAL METHODS IN ELECTROMAGNETICS, ANTENNA DESIGN, AND APPLICATIONS (ACME 2019)

16:25-17:40 WEDNESDAY, JULY 17, 2019

ROOM: Marconi Suite

CHAIRS: TBA

1. Inward Fractal Dual Band High Gain Compact Antenna

Mervat Madi, Maria Moussa, Karim Y. Kabalan

American University of Beirut, Beirut, Lebanon

2. Machine Learning in Antenna Design: An Overview on Machine Learning Concept and Algorithms

Hilal M. El Misilmani, Tarek Naous

Beirut Arab University, Beirut, Lebanon

3. Miniaturized Implantable Coplanar Waveguide Antenna for Biomedical Applications

Adel Damaj, Hilal M. El Misilmani, Soubhi Abou Chahine

Beirut Arab University, Beirut, Lebanon

HPCS 2019 PANEL II: Data-Intensive

17:40 - 19:00 WEDNESDAY, JULY 17, 2019

ROOM: Tara Suite

MODERATOR: TBA

HPCS 2019 SOCIAL EVENT III – HPCS 2019 BANQUET DINNER

19:30 - 23:00 WEDNESDAY, JULY 17, 2019

ROOM: Congregate in Lobby (PLEASE CONFIRM YOUR ATTENDANCE - Required)

HOSTS: TBA

THURSDAY, JULY 18, 2019

THE EXPLOITATION OF HIGH PERFORMANCE HETEROGENEOUS ARCHITECTURES AND ACCELERATORS (WEHA 2019)

8:00-10:10 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIRS: Victor Viñals-Yúfera, Darío Suárez Gracia, Rubén Gran Tejero

1. A Novel FPGA-Based High Throughput Accelerator For Binary Search Trees

Oyku Melikoglu¹, Oguz Ergin¹, Behzad Salami², Julian Pavon², Osman Unsal², Adrian Cristal²
¹TOBB University of Economics and Technology, Ankara, Turkey; ²Barcelona Supercomputing Center, Barcelona, Spain

2. Design Space Exploration of Embedded Applications on Heterogeneous CPU-GPU Platforms

Abdullah Siddiqui, Gul N. Khan
Ryerson University, Ontario, Canada

3. PCS: A Productive Computational Science Platform

David Ojika¹, Ann Gordon-Ross¹, Herman Lam¹, Shinjae Yoo², Yonggang Cui², Zhihua Dong², Kirsten Kleese Van Dam², Seyong Lee³, Thorsten Kurth⁴
¹University of Florida - Gainesville, Florida, USA; ²Brookhaven National Laboratory, Upton, New York, USA; ³Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA; ⁴Lawrence Berkeley National Laboratory, Berkeley, California, USA

4. Towards Co-execution on Commodity Heterogeneous Systems: Optimizations for Time-Constrained Scenarios

Raúl Nozal, Jose Luis Bosque, Ramon Bevide
Universidad de Cantabria, Santander, Spain

5. Energy proportional heterogeneous computing with reconfigurable MPSoCs

Jose Luis Nuñez-Yañez
University of Bristol, Bristol, U.K.

HIGH PERFORMANCE DYNAMIC RECONFIGURABLE & EMBEDDED SYSTEMS AND APPLICATION SPECIFIC ARCHITECTURES

8:00-10:10 THURSDAY, JULY 18, 2019

ROOM: Graham Bell Suite

CHAIRS: TBA

1. New CAD Tools to Configure Tree-Based Embedded FPGA

Hajer Saidi¹, Mariem Turki¹, Zied MARRAKCHI², Mohamad Soleiman Ben Salah³, Mohamed Abid¹
¹National Engineering School of Sfax, Digital Research center of Sfax (CRNS), Sfax, Tunisia; ²Mentor Graphics Inc., Tunis, Tunisia; ³National Electronics and Photonics Technology Center, King Abdulaziz City for Science and Technology, Riyadh, Saudi Arabia

2. Fast and Robust PRNGs based on Jumps in N-cubes for Simulation, But Not Exclusively for That

Sylvain Contassot-Vivier¹, Jean-François Couchot^{1,2}, Mohammed Bakiri³, Pierre-Cyrille Héam²

¹LORIA, UMR 7503, University of Lorraine, Vandoeuvre-lès-Nancy, France; ²FEMTO-ST Institute, University Bourgogne Franche-Comté, Belfort, France; ³CDTA Algerian Development Center of Advanced Technologies, Alger, Algeria

3. Exploration of Clustering Algorithms Effects on Mesh of Clusters based FPGA Architecture Performance

Khouloud Bouaziz^{1,2}, Sonda Chtourou¹, Mohamed Abid^{1,2}, Zied Marrakchi³, Abdulfattah Obeid⁴

¹National Engineering School of Sfax, Sfax, Tunisia; ²CRNS, Sfax, Sfax, Tunisia; ³Mentor Graphics Inc., Tunis, Tunisia; CITRI, King Abdulaziz City for Science and Technology (KACST), Riyadh, Saudi Arabia

4. The Impact of the AC922 Architecture on Performance of Deep Neural Network Training

Paweł Rosciszewski¹, Michał Iwanski², Paweł Czarnul¹

¹Faculty of Electronics, Telecommunications and Informatics, Gdansk University of Technology, Poland; ²IBM Systems, Warsaw, Poland

5. A FPGA-Pipelined, High-Throughput Approach to Coarse-Grained Simulation of HPC Systems

Carlo Pascoe, Ryan Blanchard, Herman Lam, Greg Stitt

CCMT, University of Florida – Gainesville, Florida, USA

PARTITIONING, MAPPING, SCHEDULING AND LOAD BALANCING TECHNIQUES OF HPC SYSTEMS

8:00-10:10 THURSDAY, JULY 18, 2019

ROOM: Baird Suite

CHAIRS: TBA

***1. Feedback-Based Resource Allocation for Batch Scheduling of Scientific Workflows**

Carl Witt, Dennis Wagner, Ulf Leser

Humboldt-Universität zu Berlin, Berlin, Germany

2. High Performance Multilevel Graph Partitioning on GPU

Bahareh Goodarzi¹, Farzad Khorasani², Vivek Sarkar², Dhruvajyoti Goswami¹

¹Concordia University, Montreal, Quebec, Canada; ²Georgia Institute of Technology, Atlanta, Georgia, USA

3. Graph Partitioning for FEM Applications: Reducing the Communication Volume with DSHEM

Jose Luis Gonzalez Garcia¹, Ramin Yahyapour¹, Andrei Tchernykh²

¹Gesellschaft für wissenschaftliche Datenverarbeitung mbH Göttingen (GWDG), Göttingen, Niedersachsen, Germany; ²Centro de Investigacion Científica y de Educacion Superior de Ensenada (CICESE), Ensenada, Baja California, Mexico

4. Distributed Memory Graph Representation for Load Balancing Data: Accelerating Data Structure

Generation for Decentralized Scheduling

Vinicius Freitas^{1,2}, Alexandre de L. Santana¹, Marcio Castro², Laercio L. Pilla³

¹ECL, Federal University of Santa Catarina (UFSC), Florianopolis, Brazil; ²LaPeSD, Federal University of Santa Catarina (UFSC), Florianopolis, Brazil; ³LRI, CNRS - Univ. Paris-Sud, Orsay, France

5. Randition: Random Blockchain Partitioning for Write Throughput

David Nguyen, Teng-Sheng Moh

San Jose State University, San Jose, California, USA

WORK-IN-PROGRESS SESSION

8:00 - 9:15 THURSDAY, JULY 18, 2019

ROOM: Marconi Suite

CHAIRS: TBA

1. Energy Performances of a Routing Protocol based on Fuzzy Logic Approach in an Underwater Wireless Sensor Networks

Hajar Bennouri, Amine Berqia
Smart Systems Laboratory (SSL) ENSIAS, Mohammed V University of Rabat, Rabat, Morocco

2. Anomaly Detection in High-Performance API Gateways

Deshani Geethika¹, Malith Jayasinghe², Yasas Gunarathne¹, Thilina Ashen Gamage¹, Sudaraka Jayathilaka¹,
Surangika Ranathunga¹, Srinath Perera²

¹University of Moratuwa, Katubedda, Sri Lanka; ²WSO2 Inc., Mountain View, California, USA

3. Analysis of a Self-Similar GPU Thread Map for Data-parallel m-Simplex Domains

Cristobal A. Navarro¹, Benjamin Bustos², Nancy Hitschfeld²

¹Institute of Informatics, Universidad Austral de Chile, Valdivia, Chile; ²University of Chile, Santiago, Chile

HPCS 2019 DOCTORAL DISSERTATION COLLOQUIUM

9:15 - 10:10 THURSDAY, JULY 18, 2019

ROOM: Marconi Suite

CHAIRS: David Hill, Gabor Kecskemeti

1. Parallel Construction of the Symbolic Observation Graph

Hiba Ouni

University of Paris 13, Sorbonne Paris Cite, CNRS UMR 7030 LIPN, France

Dissertation Advisors: Kais Klai, Belhassen Zouari

2. Management of Collaborations in Digital Marketplaces

Lu Zhang

Systems and Networking (SNE) lab, University of Amsterdam, Amsterdam, The Netherlands

Dissertation Advisors: Cees de Laat, Paola Grosso

HPCS 2019 THURSDAY KEYNOTE I

10:30-12:00 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIR: TBA

HPCS 2019 DEMO III: Kabiri

12:00-12:30 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIR: TBA

HPCS 2019 DEMO IV: Demchenko

12:30-13:00 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIR: TBA

**MODELING AND SIMULATION OF AND BY PARALLEL AND DISTRIBUTED SYSTEMS
(MSPDS 2019)**

14:00-16:05 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIRS: TBA

1. Performance Modelling of Deep Learning on Intel Many Integrated Core Architectures

Andre Viebke¹, Sabri Pillana¹, Suejb Memeti², Joanna Kolodziej³

¹Linnaeus University, Vaxjo, Sweden; ²Linkoping University, Linkoping, Sweden; ³Cracow University of Technology, Cracow, Poland

2. Node-Level Optimization of a 3D Block-Based Multiresolution Compressible Flow Solver with Emphasis on Performance Portability

Nils Hoppe¹, Igor Pasichnyk², Momme Allalen³, Stefan Adami¹, Nikolaus A. Adams¹

¹Technische Universitat Munchen, Garching, Germany; ²IBM Deutschland Research and Development GmbH, Garching, Germany; ³Leibniz-Rechenzentrum der Bayerischen Akademie der Wissenschaften, Garching, Germany

3. Methodology for Decoupled Simulation of SystemVerilog HDL Designs

Juan-Jose Crespo, German Maglione-Mathey, Jose L. Sanchez, Francisco J. Alfaro-Cortes, Jesus Escudero-Sahuquillo, Pedro Javier Garcia, Francisco J. Quiles

¹University of Castilla-La Mancha (UCLM), Albacete, Spain

4. Energy-Efficient Workload Allocation in Distributed HPC System

Piotr Arabas, Ewa Niewiadomska-Szynkiewicz

Institute of Control and Computation Engineering, Warsaw University of Technology, Warsaw, Poland

5. Resource Allocation in Clusters of Virtual Machines

Michał P. Karpowicz, Antonina Krajewska, Inez Okulska

Research and Academic Computer Network Institute (NASK), Warsaw, Poland

CLOUD, EDGE AND FOG COMPUTING & SERVICES FOR HIGH PERFORMANCE COMPUTING SYSTEMS

14:00-16:05 THURSDAY, JULY 18, 2019

ROOM: Graham Bell Suite

CHAIRS: TBA

1. Towards a Scalable and QoS-Aware Load Balancing Platform for Edge Computing Environments

Charafeddine Mechali^h, Hajer Taktak, Faouzi Moussa

Faculty of Sciences of Tunis, University of Tunis El Manar, Tunis, Tunisia

2. A Comparative Analysis and Evaluation of MapReduce Cloud Computing Simulators

Ebenezer Komla Gavua¹, Gabor Kecskemeti^{1,2}

¹Institute of Information Technology, University of Miskolc, Miskolc, Hungary; ²Liverpool John Moores University, Liverpool, U.K.

3. PureEdgeSim: A Simulation Toolkit for Performance Evaluation of Cloud, Fog, and Pure Edge Computing Environments

Charafeddine Mechali^h, Hajer Taktak, Faouzi Moussa

Faculty of Sciences of Tunis, University of Tunis El Manar, Tunis, Tunisia

4. Enhancing Reliability of Compute Environments on Amazon EC2 Spot Instances

Altino M. Sampaio¹, Jorge G. Barbosa²

¹CIICESI, Escola Superior de Tecnologia e Gestao, Instituto Politecnico do Porto, Felgueiras, Portugal;

²LIACC, Faculdade de Engenharia, Universidade do Porto, Porto, Portugal

5. Cache Management for Cloud RAN and Multi-Access Edge Computing with Dynamic Input

Yihang Tang, Deepika Pathinga Rajendiran, Melody Moh

San Jose State University, San Jose, California, USA

SPECIAL SESSION ON HIGH PERFORMANCE SERVICES COMPUTING AND INTERNET TECHNOLOGIES (SerCo 2019)

14:00-16:05 THURSDAY, JULY 18, 2019

ROOM: Baird Suite

CHAIRS: Ladjel Bellatreche, Karim Benouaret, Patrick Hung

1. Towards a Resource-aware Thing Composition Approach

Zakaria Maamar¹, Saoussen Cheikhrouhou², Muhammad Asim³, Ayesha Qamar³, Thar Baker⁴, Emir Ugljanin⁵
¹Zayed University, Dubai, U.A.E; ²University of Sfax, Sfax, Tunisia; ³National University of Computer and Emerging Sciences (NUCES) and Foundation of Advancement of Science and Technology (FAST), Islamabad, Pakistan; ⁴Liverpool John Moores University, Liverpool, U.K.; ⁵State University of Novi Pazar, Novi Pazar, Serbia

2. Integration of Ontologies to Support Control as a Service in an Industry 4.0 Context

Minhu Lyu, Frederique Biennier, Parisa Ghodous
University of Lyon CNRS, INSA-Lyon LIRIS UMR5205, France

3. On the Suitability of Data Selection for Cross-building Knowledge Transfer

Mouna Labiadh^{1,2}, Christian Obrecht², Catarina Ferreira da Silva¹, Parisa Ghodous¹
¹LIRIS, University of Lyon CNRS, INSA-Lyon, Universite Claude Bernard Lyon I, France; ²CETHIL, University of Lyon CNRS, INSA-Lyon, Universite Claude Bernard Lyon I, France

4. SAFC: Scheduling and Allocation Framework for Containers in a Cloud Environment

Tarek Menouer¹, Christophe Cerin², Congfeng Jiang³, Jonathan Rivalan⁴
¹Umanis, Levallois-Perret, France; ²University of Paris 13, Villetaneuse, France; ³Hangzhou Dianzi University, Zhejiang Province, China; ⁴AlterWay, Saint Cloud, France

5. Stream-Based Representation and Incremental Optimization of Technical Market Indicators

Konstantin Bakanov, Ivor Spence, Hans Vandierendonck
Queen's University Belfast, Belfast, U.K.

MINING, MACHINE LEARNING, PATTERN RECOGNITION & APPLICATIONS

14:00-16:05 THURSDAY, JULY 18, 2019

ROOM: Marconi Suite

CHAIRS: TBA

1. Performance Prediction for Power-Capped Applications based on Machine Learning Algorithms

Bo Wang¹, Jannis Klinkenberg¹, Daniel Ellsworth^{1,2}, Christian Terboven¹, Matthias Muller¹
¹IT Center, RWTH Aachen University, Aachen, Germany; ²Colorado College, Colorado Springs, Colorado, USA

2. Queue Waiting Time Prediction for Large-scale High-performance Computing System

Ju-Won Park
Korea Institute of Science and Technology Information (KISTI), Daejeon, Republic of Korea

3. Novel Algorithm to Extract Multiple Solutions for RNA Sequence Classification Problem

Naoual Guannoni^{1,2}, Faouzi Mhamdi^{2,3}, Emanuel Weitschek⁵, Mourad Elloumi^{2,4}
¹Faculty of Sciences of Tunis, Tunis El-Manar University, Tunis, Tunisia; ²LaTICE ENSIT, University of Tunis, Tunis, Tunisia; ³Higher Institute of Applied Language and Computer Science of Beja, University of Jendouba, Tunisia; ⁴Faculty of Economic Sciences and Management of Tunis, Tunis El-Manar University, Tunis, Tunisia; ⁵Institute of Systems Analysis and Computer Science - National Research Council, Rome, Italy and Uninettuno International University, Rome, Italy

4. Cost Reduction Bounds of Proactive Management Based on Request Prediction

Ruben Milocco¹, Pascale Minet², Eric Renault³, Selma Boumerdassi⁴
¹GCAyS, UNComahue, Buenos Aires, Neuquen, Argentina; ²INRIA, Paris, France; ³SAMOVAR, Telecom SudParis, CNRS, Universite Paris-Saclay, Evry, France; ⁴CNAM/CEDRIC, Paris, France

5. Association Rule Mining Using Discrete Jaya Algorithm

Hend Amraoui¹, Faouzi Mhamdi², Mourad Elloumi¹

¹LaTICE, University of Tunis, Tunis, Tunisia; ²Higher Institute of Applied Languages and Computer Science of Béja (ISLAIB), University of Jendouba, Beja, Tunisia

SPECIAL SESSION ON VIRTUALIZATION IN HIGH PERFORMANCE COMPUTING AND SIMULATION (VIRT 2019)

16:25-18:05 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

CHAIRS: Uday Kurkure, Hari Sivaraman

1. Trillium: The Code is the IR

Amogh Akshintala¹, Hangchen Yu², Arthur Peters², Christopher J. Rossbach^{2,3}

¹University of North Carolina - Chapel Hill, North Carolina, USA; ²University of Texas – Austin, Texas, USA;

⁴VMware Research Group, Texas, USA

2. TECN: Task Selection and Placement in GPU Enabled Clouds using Neural Networks

Hari Sivaraman, Uday Kurkure, Lan Vu

VMware Inc., Palo Alto, California, USA

3. Virtual Machine Placement Solution for vGPU Enabled Clouds

Anshuj Garg¹, Uday Kurkure², Hari Sivaraman², Lan Vu²

¹Indian Institute of Technology - Bombay, Bombay, India; ²VMware Inc., Palo Alto, California, USA

4. Evaluating GPU Performance for Deep Learning Workloads in Virtualized Environment

Ramesh Radhakrishnan¹, Yogesh Varma¹, Uday Kurkure²

¹Dell EMC Inc., Round Rock, Texas, USA; ²VMware Inc., Palo Alto, California, USA

SECURITY, ENCRYPTION AND HIGH PERFORMANCE COMPUTING SYSTEMS

16:25-18:05 THURSDAY, JULY 18, 2019

ROOM: Graham Bell Suite

CHAIRS: Marco Baldi, Francesco Spegni, Gerardo Pelosi, Giovanni Agosta

1. The Mobile Palmprint-based Verification based on Three-value Masks

Agata Gielczyk, Michał Choraś, Rafał Kozik

University of Science and Technology, Bydgoszcz, Poland

2. Weighted Two-Levels Secret Sharing Scheme for Multi-Clouds Data Storage with Increased Reliability

Vanessa Miranda-López¹, Andrei Tchernykh^{1,2,3}, Mikhail Babenko⁴, Viktor Kuchukov⁴, Maxim Deryabin⁴, Elena Golimblevskaia⁴, Egor Shiryaev⁴, Arutyun Avetisyan³, Raul Rivera-Rodriguez¹, Gleb Radchenko², El-Ghazali Talbi⁵

¹CICESE Research Center, Ensenada, Mexico; ²South Ural State University, Chelyabinsk, Russia; ³Ivannikov Institute for System Programming, Moscow, Russia; ⁴North-Caucasus Federal University, Stavropol, Russia;

⁵University of Lille 1 and INRIA, Lille, France

3. High-Performance Computing for Formal Security Assessment

Luca Spalazzi, Francesco Spegni

Universita Politecnica delle Marche, Ancona, Italy

4. A New Parallelization for p3Enum and Parallelized Generation of Optimized Pruning Functions

Michael Burger¹, Christian Bischof¹, Juliane Krämer²

¹Scientific Computing, TU Darmstadt, Darmstadt, Germany; ²Cryptography and Computer Algebra, TU Darmstadt, Darmstadt, Germany

CELLULAR AUTOMATA ALGORITHMS & ARCHITECTURES IN HIGH PERFORMANCE COMPUTING AND SIMULATION

16:25-18:05 THURSDAY, JULY 18, 2019

ROOM: Baird Suite

CHAIRS: Marija Bezbradica, Martin Crane, Jelena Vasic

1. Field Programmable Gate Array Technology as an Enabling Tool Towards Large-Neighborhood Cellular Automata on Cells with Many States

Nikolaos Kyparissas, Apostolos Dollas

School of Electrical and Computer Engineering, Technical University of Crete, Chania, Greece

2. Efficient Computational Models for Assessment of Spatial Infection Features

Andreas Hillmann, Martin Crane, Heather Ruskin

School of Computing, Dublin City University, Dublin, Ireland

3. Parallel Matching of Regular Expressions with BSP Automata

Thibaut Tachon

Huawei Technologies, Boulogne Billancourt, Paris, France; INSA Centre, Universite Orleans, Orleans, France

4. INV.CAAA. TBA

TBA

TBA

BIG DATA PRINCIPLES, ARCHITECTURES & APPLICATIONS

16:25-18:05 THURSDAY, JULY 18, 2019

ROOM: Marconi Suite

CHAIRS: Tobias Meisen, Hao Wang, Max Hoffmann

1. How To RAMI 4.0: An Agent-based Information Management Architecture

Andreas Kirmse¹, Vadim Kraus¹, Tristan Langer¹, André Pomp¹, Tobias Meisen²

¹Institute of Information Management in Mechanical Engineering, RWTH Aachen University, Aachen, Germany;

²Technologies and Management of Digital Transformation, University of Wuppertal, Wuppertal, Germany

2. A Throughput Model for Data Stream Processing on Fog Computing

Felipe Rodrigo de Souza, Marcos Dias de Assuncao, Eddy Caron

EnsL, UCBL, CNRS, INRIA, LIP, Universite Lyon, Lyon, France

3. Model to Assess the Economic Profitability of Predictive Maintenance Projects

Christian Wolf¹, Andreas Kirmse¹, Maximilian Burkhalter², Max Hoffmann¹, Tobias Meisen³

¹Cybernetics Lab IMA & IfU, RWTH Aachen University, Aachen, Germany; ²RWTH Aachen University, Germany;

³Technologies and Management of Digital Transformation, University of Wuppertal, Wuppertal, Germany

4. Transforming Non Textually Aligned SPMD Programs into Textually Aligned SPMD Programs by using Rewriting Rules

Wadoud Bousdira

LIFO and University of Orléans, Orléans, France

HPCS 2019 FORUM

18:05 - 18:50 THURSDAY, JULY 18, 2019

ROOM: Tara Suite

MODERATORS: TBA

**HPCS 2019 SOCIAL EVENT IV – Open Top Guided Bus City Tour followed by dinner time
19:10 - 23:00 THURSDAY, JULY 18, 2019**

ROOM: Congregate in Lobby (Please register for this if interested. Required)

HOSTS: TBA

FRIDAY, JULY 19, 2019

**HPCS2019 SOCIAL EVENT V: Full Day Tour of Wicklow & Kilkenny (Including
Glendalough and Kilkenny Castle)**

08:30 - 19:00 FRIDAY, JULY 19, 2019

ROOM: Congregate in Lobby (Please register for this if interested. Required)

HOSTS: TBA

Tentative Schedule:

08:30 Depart Grand Hotel Malahide.

10:00 Check into the Glendalough Visitor Centre* and guided tour of the monastic city and local highlights.

11:30 Drive through the Wicklow Mountains from Glendalough to Kilkenny.

13:00 3-course lunch at local restaurant. TBA

14:30 Arrive Kilkenny and visit the Kilkenny Castle*; free time to explore the narrow streets, the Black Abbey and see the Cathedral of St Canice.

17:30 Return to Dublin.

19:00 Drop-off to hotel.