Science at the Intersection of Data, Modelling and Computation. Preface for ICCS 2018

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1. Introduction

Welcome to the 18th Annual International Conference on Computational Science (ICCS - https://www.iccs-meeting.org/iccs2018/), to be held on June 11-13, 2018 in Wuxi, China. Located in the Jiangsu province, Wuxi is bordered by Changzhou to the west and Suzhou to the east. The city meets the Yangtze River in the north and is bathed by Lake Tai to the south. Wuxi is home to many parks, gardens, temples, and the fastest supercomputer in the world, the Sunway TaihuLight. ICCS 2018 is jointly organized by University of Chinese Academy of Sciences, National Supercomputing Center in Wuxi, University of Amsterdam, NTU Singapore and the University of Tennessee.

The International Conference on Computational Science is an annual conference that brings together researchers and scientists from mathematics and computer science as basic computing disciplines, researchers from various application areas who are pioneering computational methods in sciences such as physics, chemistry, life sciences, and engineering, as well as in arts and humanitarian fields, to discuss problems and solutions in the area, to identify new issues, and to shape future directions for research.

Since its inception in 2001, ICCS has attracted increasingly higher quality and numbers of attendees and papers, and this year is not an exception, with over 350 expected participants. The proceedings series have become a major intellectual resource for computational science researchers, defining and advancing the state of the art in this field.

ICCS 2018 in Wuxi, China, will be the eighteenth in this series of highly successful conferences. For the previous seventeen meetings see: http://www.iccs-meeting.org/iccs2018/previous-iccs/ .

The theme for ICCS 2018 is "**Science at the Intersection of Data, Modelling and Computation**", to highlight the role of computation as a fundamental method of scientific inquiry and technological discovery tackling problems across scientific domains and creating synergies between disciplines. This conference will be a unique event focusing on recent developments in: scalable scientific algorithms; advanced software tools; computational grids; advanced numerical methods; and novel application areas. These innovative novel models, algorithms and tools drive new science through efficient application in areas such as physical systems, computational and systems biology, environmental systems, finance, and others.

ICCS is well known for its excellent line up of keynote speakers. The keynotes for 2018 are:

- **Charlie Catlett**, Argonne National Laboratory | University of Chicago, USA

- **Xiaofei Chen**, Southern University of Science and Technology, China
- **Liesbet Geris**, University of Liège | KU Leuven, Belgium
- **Sarika Jalan**, Indian Institute of Technology Indore, India
- **Petros Koumoutsakos**, ETH Zürich, Switzerland
- **Xuejun Yang**, National University of Defense Technology, China

This year we had 405 submissions (180 submissions to the main track and 225 to the workshops). In the main track, 51 full papers were accepted (28%). In the workshops, 97 full papers (43%). A high acceptance rate in the workshops is explained by the nature of these thematic sessions, where many experts in a particular field are personally invited by workshop organisers to participate in their sessions.

ICCS relies strongly on the vital contributions of our workshop organizers to attract high quality papers in many subject areas. We would like to thank all committee members for the main track and workshops for their contribution to ensure a high standard for the accepted papers. We would also like to thank *Springer*, *Elsevier*, *Intellegibilis*, *Beijing Vastitude Technology Co., Ltd.* and *Inspur* for their support. Finally, we very much appreciate all the local activity committee members for their hard work to prepare this conference.

We are proud to note that ICCS is an ERA 2010 A-ranked conference series.

We wish you a successful and enjoyable conference in Wuxi.

June 2018

The ICCS 2018 Organizers:

Yong Shi
Haohuan Fu
Yingjie Tian
Valeria V. Krzhizhanovskaya
Michael Lees
Jack Dongarra
Peter M.A. Sloot

2. Local Activity Committee in China

Co-chairs

Yingjie Tian, University of Chinese Academy of Sciences, China
Lin Gan, National Supercomputing Center in Wuxi, China

Members

Jiming Wu, National Supercomputing Center in Wuxi, China
Lingying Wu, National Supercomputing Center in Wuxi, China
Jinzhe Yang, National Supercomputing Center in Wuxi, China
Bingwei Chen, National Supercomputing Center in Wuxi, China
Yuanchun Zheng, University of Chinese Academy of Sciences, China
Minglong Lei, University of Chinese Academy of Sciences, China
Jia Wu, Macquarie University, Australia
Zhengsong Chen, University of Chinese Academy of Sciences, China
Limeng Cui, University of Chinese Academy of Sciences, China
Jiabin Liu, University of Chinese Academy of Sciences, China
Biao Li, University of Chinese Academy of Sciences, China
Yunlong Mi, University of Chinese Academy of Sciences, China
Wei Dai, University of Chinese Academy of Sciences, China

3. Workshops and Organizers

Advances in High-Performance Computational Earth Sciences: Applications and Frameworks – IHPCES 2018
Xing Cai, Kohei Fujita, Takashi Shimokawabe

Agent-Based Simulations, Adaptive Algorithms and Solvers – ABS-AAS 2018
Robert Schaefer, Maciej Paszynski, Victor Calo, David Pardo

Applications of Matrix Methods in Artificial Intelligence and Machine Learning – AMAIML 2018
Kourosh Modarresi

Architecture, Languages, Compilation and Hardware Support for Emerging ManYcore Systems – ALCHEMY 2018
Loïc Cudennec, Stéphane Louise

Biomedical and Bioinformatics Challenges for Computer Science – BBC 2018
Giuseppe Agapito, Mario Cannataro, Mauro Castelli, Riccardo Dondi, Rodrigo Weber dos Santos, Italo Zoppis

Computational Finance and Business Intelligence – CFBI 2018
Shouyang Wang, Yong Shi, Yingjie Tian

Computational Optimization, Modelling and Simulation – COMS 2018
Xin-She Yang, Slawomir Koziel, Leifur Leifsson, T. O. Ting

Data-Driven Computational Sciences – DDCS 2018
Craig Douglas, Abani Patra, Ana Cortés, Robert Lodder

Data, Modeling, and Computation in IoT and Smart Systems – DMC-IoT 2018
Julien Bourgeois, Vaidy Sunderam, Hicham Lakhlef

Mathematical-Methods-and-Algorithms for Extreme Scale – MATH-EX 2018
Vassil Alexandrov

Multiscale Modelling and Simulation – MMS 2018
Derek Groen, Lin Gan, Valeria Krzhizhanovskaya, Alfons Hoekstra

Simulations of Flow and Transport: Modeling, Algorithms and Computation – SOFTMAC 2018
Shuyu Sun, Jianguo (James) Liu, Jingfa Li

Solving Problems with Uncertainties – SPU 2018
Vassil Alexandrov

Teaching Computational Science – WTCS 2018
Angela B. Shiflet, Alfredo Tirado-Ramos, Nia Alexandrov

Tools for Program Development and Analysis in Computational Science – TOOLS 2018
Karl Fürlinger, Arndt Bode, Andreas Knüpfer, Dieter Kranzlmüller, Jens Volkert, Roland Wismüller

Urgent Computing – UC 2018
Marian Bubak, Alexander Boukhanovsky

4. Reviewers

Ahmad Abdelfattah
David Abramson
Giuseppe Agapito
Ram Akella
Elisabete Alberdi
Marco Aldinucci
Nia Alexandrov
Vassil Alexandrov
Saad Alowayyed
Ilkay Altintas
Stanislaw Ambroszkiewicz
Ioannis Anagnostou
Michael Antolovich
Hartwig Anzt
Hideo Aochi
Tomasz Arodz
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Victor Azizi Tarksalooyeh
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Krzysztof Banas
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Stefano Beretta
Daniel Berrar
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Anna Bilyatdinova
Guillaume Blin
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Marcel Boersma
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Jérémy Buisson
Aleksander Byrski
Wentong Cai
Xing Cai
Mario Cannataro
Yongcan Cao
Pedro Cardoso
Mauro Castelli
Eduardo Cesar
Imen Chakroun
Huangxin Chen
Mingyang Chen
Zhensong Chen
Siew Ann Cheong
Lock-Yue Chew
Ana Cortes
Enrique Costa-Montenegro
Carlos Cotta
Jean-Francois Couchot
Helene Coullon
Attila Csikász-Nagy
Loïc Cudennec
Javier Cuenca
Yifeng Cui
Ben Czaja
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Susumu Date
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Frank Giraldo
Ivo Gonçalves
Yuriy Gorbachev
Pawel Gorecki
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Piotr Gurgul
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Peijia Li
Wei Li
I-Jong Lin
Hong Liu
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