



7th International Young Scientist Conference on Computational Science

Computational Science by Youth: Modeling and Simulation in Science, Industry, and Society

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Abstract

This volume presents the selected papers of young computational scientists – participants of YSC’2018. Annual Young Scientist Conferences (YSC) in computational science are traditionally held since 2012 by the University of Amsterdam (the Netherlands) and ITMO University (St. Petersburg, Russia) as the open international event, which aim to develop a dialogue about the present and future of computational science with a focus on applications of modeling and simulation solving a wide range of problems of science, industry, and business.

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1. Rationale and brief history

Bill Nye, an American science communicator once said: “There's nothing I believe in more strongly than getting young people interested in science and engineering, for a better tomorrow, for all humankind” [1]. Involvement of young people in science is very important, especially today when we are witnessing a continuing erosion of

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motivation for science [2-5]. This may result in reduced numbers of young people choosing to study science and a career of researcher.

According to Talley et al., there are a number of factors, which can increase motivation of young people in doing research. Authors were focused more in marine science but these points could be applied to any scientific domain. Namely, these factors are early and continued exposure, engagement in authentic research, interaction with practicing scientists, participation in projects, practical work in that field [6]. Organization of short term events may also facilitate scientific activities. Indeed, such events bring together participants from different educational institutions with diverse backgrounds and provide a unique opportunity to foster their collaborative competencies beyond a familiar environment [7-8]. During the event young scientists can meet senior peers and researchers, and get a valuable feedback.

With the purpose to facilitate communication among young researchers we have organized International young scientists conference on computational science (YSC'). We have already presented a concept and brief history of YSC in our previous editions [9-12]. Initially, it was organized jointly with the University of Amsterdam (UvA) and brought together early career researchers and professionals in high performance computing. The main idea was to create a collaborative event in order to give young scientists an opportunity to share their ideas and to develop list of contacts. Each year we select a new venue and new partner to host this event. Apart from University of Amsterdam, our partners in conference organization were National Technical University of Athens, Greece (YSC'2015), AGH University of Science and Technology, Poland (YSC'2016), South-Eastern Finland University of Applied Sciences, Finland (YSC'2017). In 2018 we decided to come back to Greece. Our partners this time are University of Crete (UoC) and Foundation of Research and Technology-Hellas (FORTH).

The University of Crete is a public educational institution committed to excellence in research and teaching. The University has 16 Departments in 5 Schools (Philosophy, Education, Social, Economic & Political Sciences, Sciences & Engineering, and Medicine). The international orientation of the University is reflected in its track record of collaborations with many of the leading research and educational institutions in Europe and worldwide, as well as active promotion of mobility and exchange programmes. Research and research training at all levels benefits also from the close collaboration between many of the University's research groups with the Institutes of the Foundation for Research and Technology – Hellas (FORTH) and the Institute of Marine Biology, Biotechnology, and Aquaculture (IMBBC).

At the same time, the Foundation for Research and Technology - Hellas (FORTH) is the premier research centre in Greece, internationally acknowledged for its excellence in basic and applied research, in developing applications and products, and in providing services. The Institute of Computer Science (ICS) and the Institute of Applied and Computational Mathematics (IACM), two of the six Institutes of FORTH have participated in the co-organization of YSC'2018.

2. Participants of YSC'2018

The first author and the speaker of each work presented during the conference sessions was a researcher under 35 years old. After a peer-review process, YSC'2018 reached 8 sessions with about 50 participants on different topics starting with computational methods, models and high-performance algorithms to transdisciplinary and complex domains, such as the computational biomedicine, computational city science, and environmental science, social and human sciences.

During conference sessions we were pleased to see familiar faces and follow the progress of our participants. After the event, they said that the most valuable aspect of the conference is the attitude to the participants and their works. They also highlighted the importance of the opportunity of bringing people from various areas of research together and not making it a series of separate seminars. Some of participants think that the conference helped them to believe in themselves, to find like-minded people and new friends, and come up with new ideas for further work.

In our turn we thank the young authors, master students and PhD candidates and wish them a long and fruitful career in computational science. We hope that in the future the YSC events will continue to serve as a regular basis for the internalization of young scientists research and will help to build strong ties within the international community in the field of computational science.

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