



Summer Computer School “Data Science Dubna-2019”: summing up

The Summer Computer School “Data Science Dubna-2019”, organized by the Laboratory of Information Technologies of the Joint Institute for Nuclear Research, Dubna State University, Plekhanov Russian University of Economics, the voluntary association “Center for the Development of Innovative Territorial Clusters in Dubna” with the participation of the Special Economic Zone “Dubna” and the Consortium “IT-education – XXI century”, ended on Saturday, 13 July.



The School started on Saturday, 6 July, and its grand opening took place on Sunday, 7 July, where JINR Vice-Director Richard Lednický, Deputy Head of the Dubna Administration on Education and Housing Evgeny Stein, Rector of Dubna University Dmitry Fursaev and Deputy Director-General for Investments and Innovations of the SEZ “Dubna” Sergey Pisarev made welcome speeches. Director of VBLHEP JINR Vladimir Kekelidze and Director of LIT JINR Vladimir Korenkov also presented their lectures.

84 students and 17 teachers from 20 leading universities of different regions of Russia (BelsU, MIEM HSE, MIET, MEFhI, PSUTI, PetrSU, RosNOU, PRUE, NOSU, SpbU, TSU, Dubna University, etc.) came to Dubna in the pursuit of new knowledge. The 8-day program of the School included lectures, trainings, round tables, a hackathon, presentations of IT companies, excursions, sports and entertainment activities.

The School participants listened to 18 lectures by famous scientists of Russian universities, national research centers and international scientific organizations, which covered the major topics of the School, namely, Big Data analytics, distributed and high-performance computing, information

processing systems and data lakes for megascience projects, methods and algorithms of machine learning, quantum and soft computing, digital transformation and modern IT education. Among the lecturers, the followings should be noted: Avetisyan A.I. (doctor of physics and mathematics, corresponding member of RAS, director of ISP RAS), Voevodin V.V. (doctor of physics and mathematics, corresponding member of RAS, deputy director of RCC MSU), Klimentov A.A. (doctor of physics and mathematics, professor of Brookhaven National Laboratory, USA), Smelyansky R.L. (doctor of physics and mathematics, corresponding member of RAS, director-general of ARCCN), Sukhomlin V.A. (doctor of technical sciences, head of LOIT of CMCF MSU), Chetverushkin B.N. (doctor of physics and mathematics, academician of RAS, scientific supervisor of AMI PAS).



Trainings on machine learning, technologies of parallel programming on hybrid architectures and Big Data analytics were of great interest among students. They were held by the best specialists of LIT JINR and teachers of Dubna University. The winners were defined on the basis of the results of each training; they were awarded diplomas and prizes from one of the School sponsors, i.e. "[Tok Dubna](#)".

During the trainings round tables were organized for the participating teachers, where lively discussions on the following topics took place: IT education methodology, organization of on-line training, modern problems of artificial intelligence in terms of digital economy.

Undoubtedly, one of the major activities of the School was the hackathon "Analysis of Big Data in Computer Vision" held together with the company "[Videointellect](#)" (Stadnik A.V.). An archive of video data consisting of daily recordings from different security cameras in transport was provided as a material for analysis. Students were divided into groups at random, and they needed to develop an algorithm for counting people entering and leaving the bus. The winners were determined on the basis of their presentations, the efficiency of the algorithm and the resulting number, which should have been as close to the real one as possible. They were also awarded diplomas and prizes from "[Tok Dubna](#)".

In addition to the educational program, excursions to Dubna University, where the prototyping center and the laboratory of virtual and augmented reality attracted everyone's attention, to LIT JINR, where the participants saw the "Govorun" supercomputer, to VBLHEP JINR, where an accelerator complex of the NICA megaproject is being built, as well as to the SEZ "Dubna", where main companies of the IT cluster are located, were organized for the School participants.



The best students on the basis of the results of all School activities received invitations to the 27th International Symposium on Nuclear Electronics and Computing (NEC'2019), which will be held on 30 September – 4 October 2019 in Budva, Montenegro.

We express our special gratitude to the organizing committee of the School and the volunteers of Dubna University who did their best to hold the School at the highest level.