



EURO

Training study results and analysis

NCC Bulgaria – NCC UK Twinning, 18.07.2022

Aneta Karaivanova, IICT

- The study was held in 2021
- 85 respondents (80 % Avitohol users)
- The information was used only for the purposes of the project. The results were publicly presented only in generalized form.
- The goal:
 - To have starting point for the training programs
 - Topics for training, needs, format
 - Experience in using HPC / AI / HPDA.

31 questions in 4 main groups:

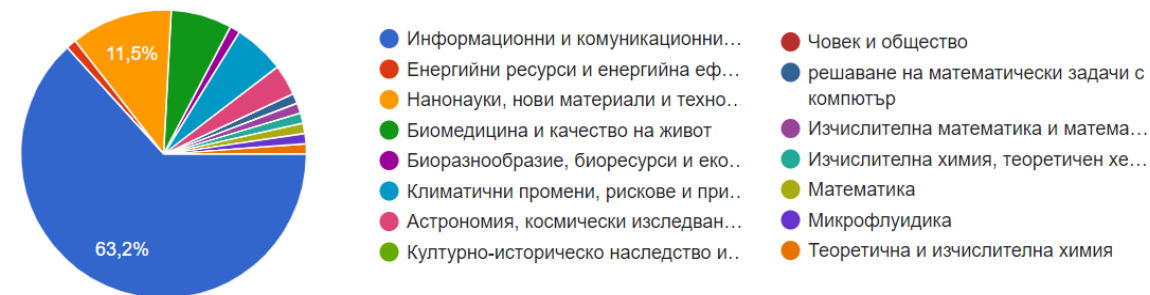
1. **General information** - profile of participants (position, scientific discipline, previous experience and current level of HPC use);
2. **Need for training** - type and level of training, methods, duration;
3. **Need for analysis of big data** - to examine the needs of HPC users for access to HPC cloud and data storage resources;
4. **Working with artificial intelligence and machine learning**

General information

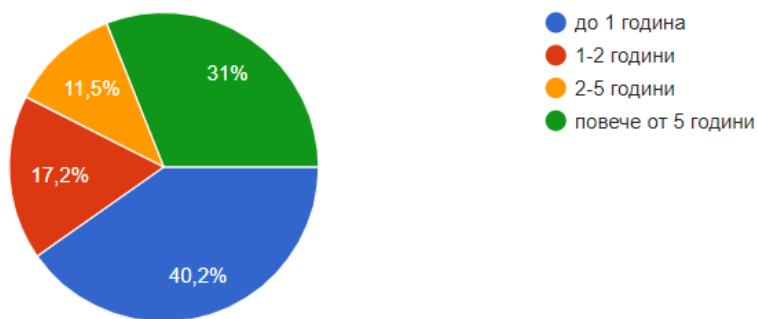
Моля, посочете текущата си позиция:



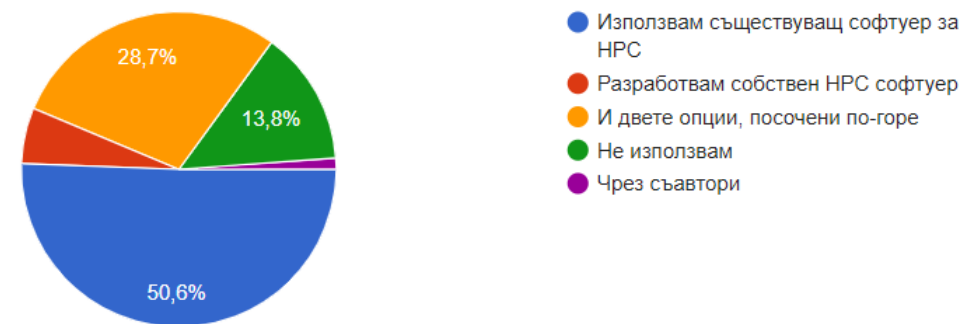
Моля, посочете основната си научна дисциплина или област на работа. Моля, изберете записа, който е най-близо до основната Ви сфера.



Приблизително колко години опит с HPC или AI / HPDA имате?

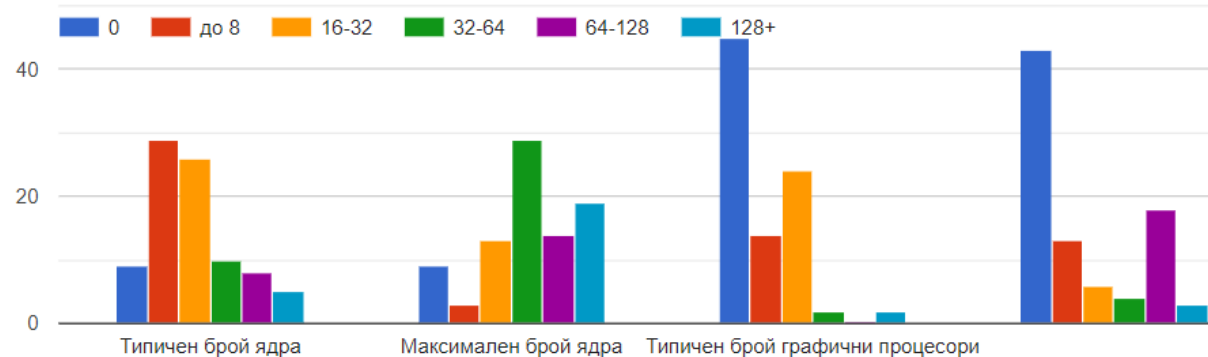


Моля, посочете как използвате HPC:



General information (cont.)

Колко процесорни ядра и/или графични процесори обикновено използвате (0, ако не използвате)?

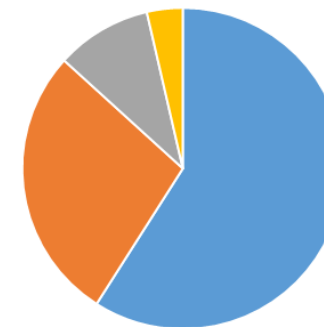


Приблизително колко CPU часа (умножени по брой ядра) използвате средно на месец (0, ако не използвате)?



■ 0 ■ 0-1000 ■ 1000-25000 ■ 25000+

Приблизително колко GPU часа използвате средно на месец (0, ако не използвате)?

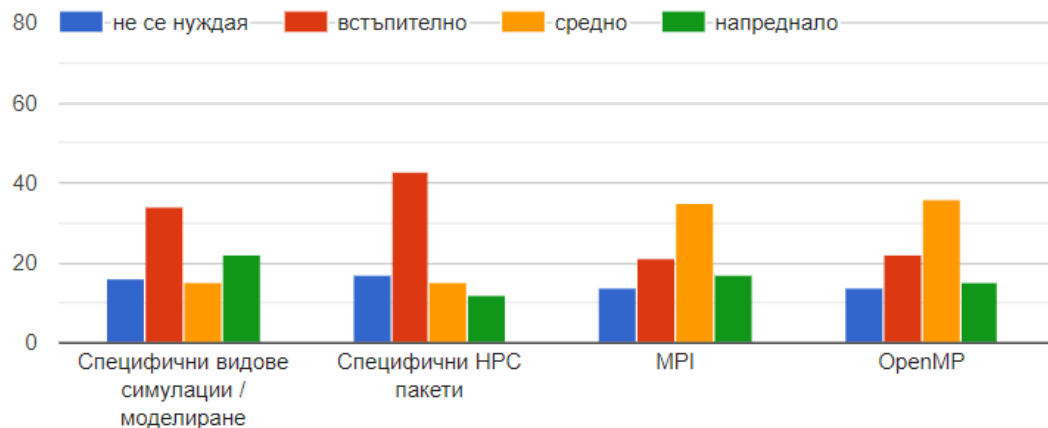


■ 0 ■ 0-100 ■ 100-2000 ■ 2000+

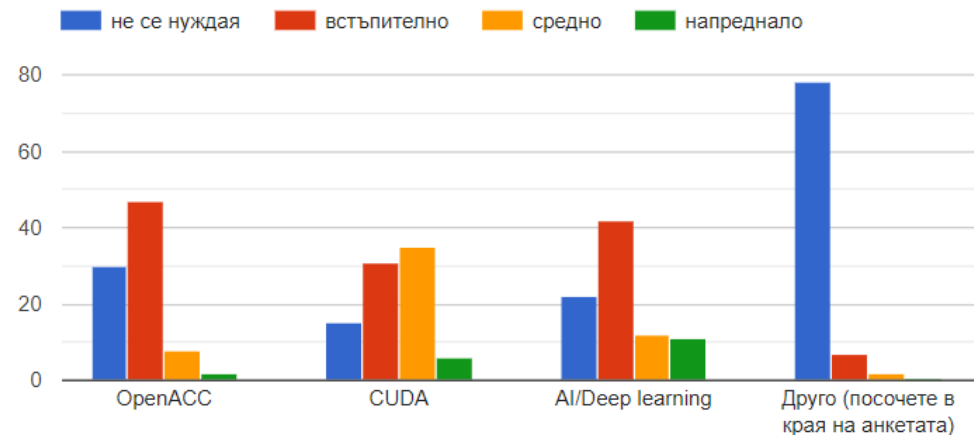
Training needs



От какъв тип обучение се интересувате и на какво ниво?



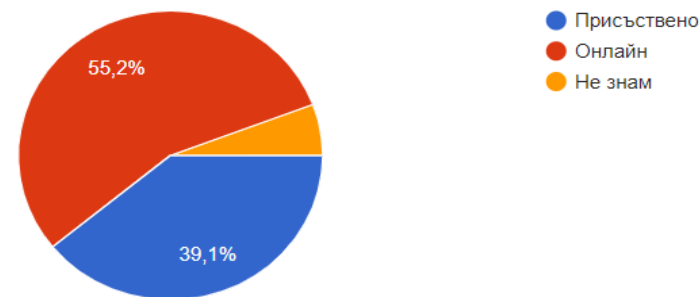
От какъв тип обучение се интересувате и на какво ниво?



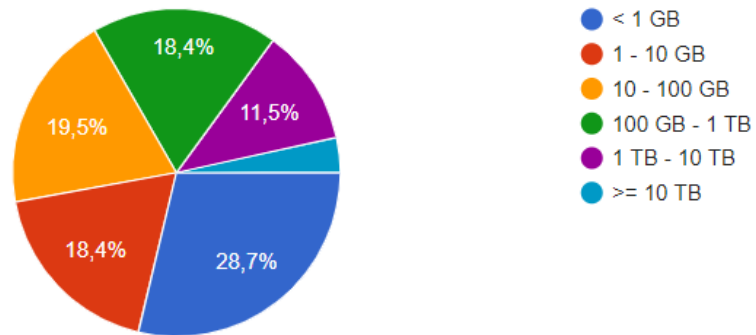
Колко дни смятате за оптимални за обученията?



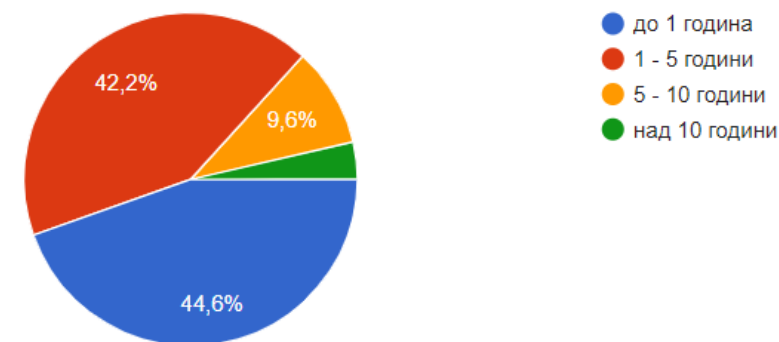
Предпочитате присъствени или онлайн обучения/обучителни събития?



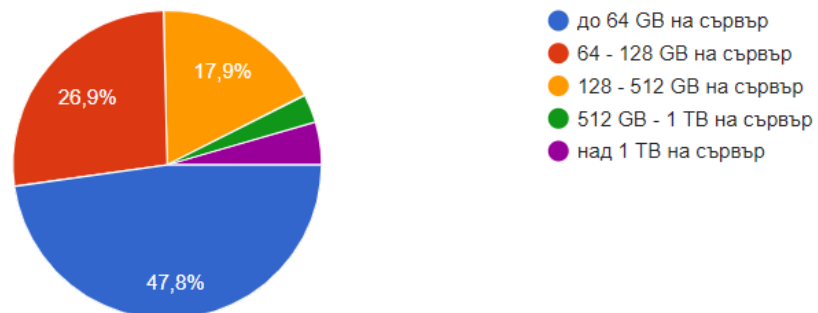
С какви количества данни работите?



За какво време имате нужда да съхранявате данните си?

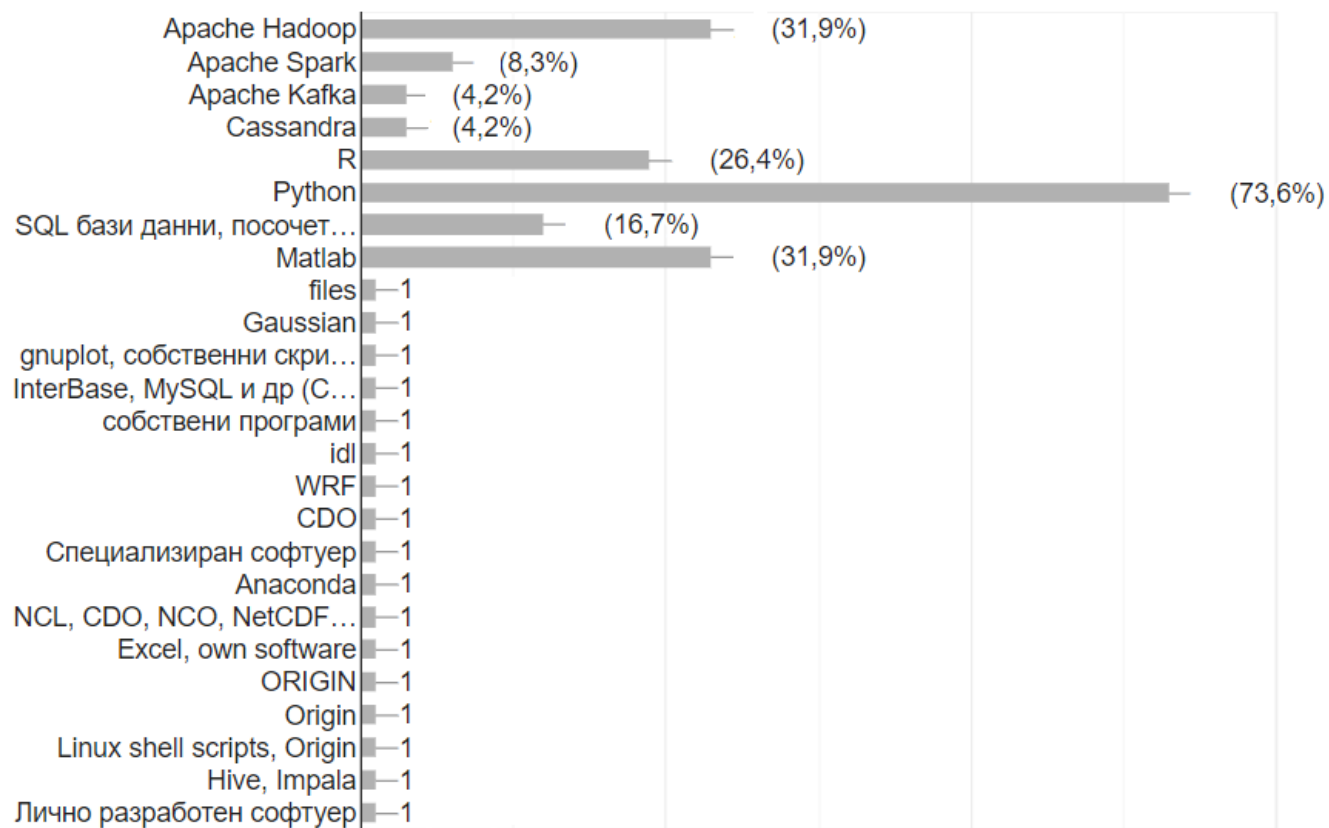


Какво количество RAM памет изисква обработването на данни?



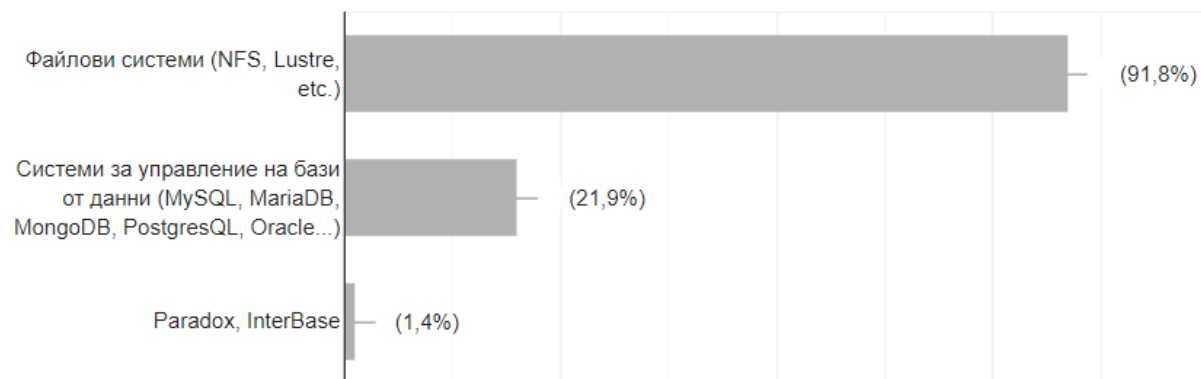
Big data (cont.)

Какъв софтуер за обработка на данните използвате?

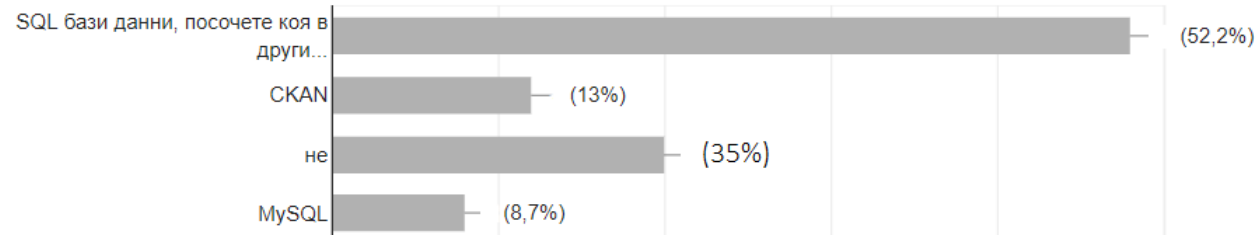


Big data (cont.)

Какви системи за съхранение на данните използвате?

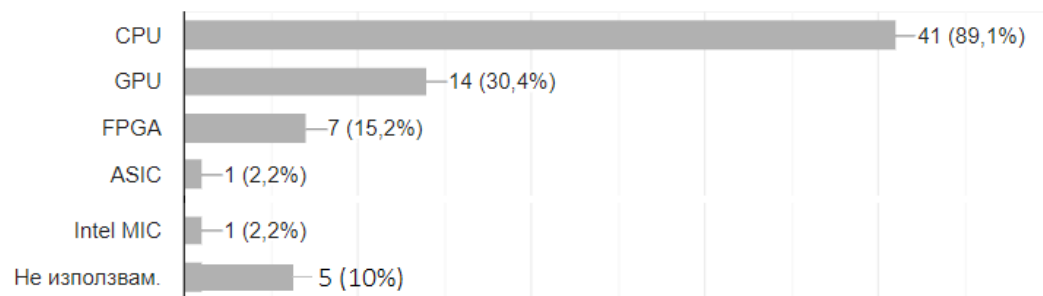


Използвате ли система за съхранение и достъп до метаданни?

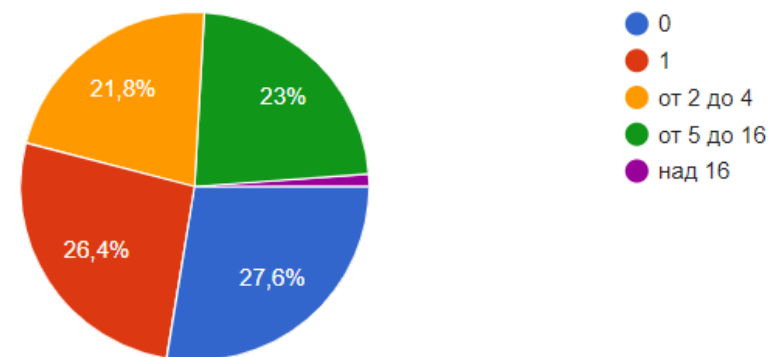


AI and machine learning

Какъв хардуер използвате за работа с AI?

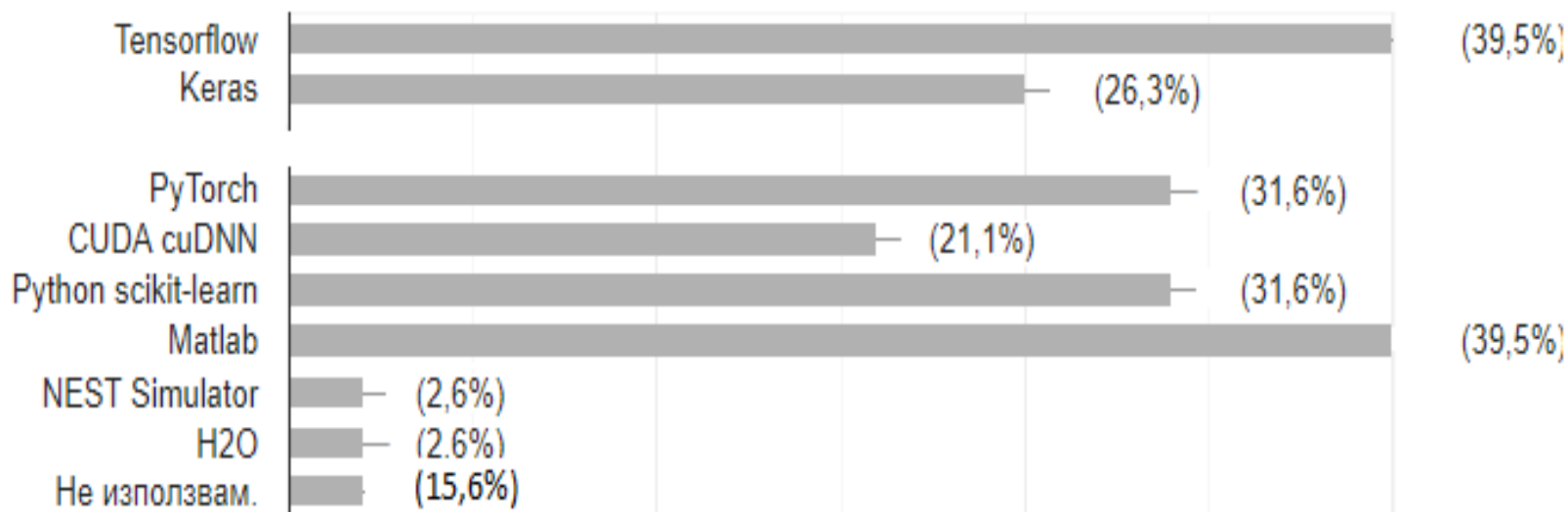


На колко сървъра извършвате обучение?



AI and machine learning (cont.)

Какъв софтуер използвате за AI/машинно обучение?



Основни използвани програмни езици за ИИ и машинно обучение: Python, Matlab, C/C++

Issues and recommendations



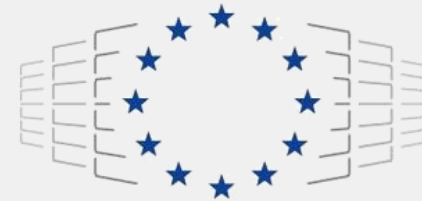
- The significant part of the participants have tasks that will benefit from the use of HPC/HPDA/AI, but for about 25% there is a visible need for better familiarization with these technologies.
- The majority of users have significant experience, so training for advanced users and developers can be emphasized.
- Some of the participants started using HPC/HPDA/AI very recently, which necessitated the training at the entry level.
- A significant part of users are interested in long-term - over 5 years - data storage. This should be reflected as resources allocated and protocols maintained and the relevant subject matter included as training material.
- When working with AI, the focus should be on using CPUs and GPUs, but it seems appropriate to provide training for using FPGAs (Field-Programmable Gate Arrays) as well.
- Consideration should be given to using higher-level languages such as Python, R, Matlab for high-performance computing and data processing

Training events



- Online training for end users "HPC using Avitohol" 12 May 2021, <https://events.iict.bas.bg/event/13/>
- Online training for young researchers and doctoral students „Introduction to supercomputing with practical demonstrations on Avitohol", 22 October 2021, <https://events.iict.bas.bg/event/32/>.
- Online training seminar in two parts “Computing using quantum annealers”, 26 October (Part 1) and 28 October (Part 2) 2021, <https://events.iict.bas.bg/event/28/>
- Online training “Open data: services and repositories“, 26 November 2021, <https://events.ni4os.eu/event/59/>
- PRACE autumn school 2021 (online): Fundamentals of biomolecular simulations and virtual drug development", 20-24 September 2021, <https://events.prace-ri.eu/event/1222/>
- Introductory PRACE course: “HPC FUNDAMENTALS FOR END-USERS", 1-4 February 2022, <https://sofiatech.bg/news/introductory-prace-course-hpc-fundamentals-for-end-users/>
- Online training: Python Universe for HPC with examples, 27 May 2022, <http://eurocc-bulgaria.bg/2022/04/python-universe-for-hpc-with-examples/>
- Online training: Presenting the new software for Data processing at IICT, 13 July 2022, <https://events.iict.bas.bg/event/46/>

Thanks!



EuroHPC
Joint Undertaking

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