

FBK and Microsoft together for precision medicine

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FBK presented a major new machine learning project for Precision Medicine that leverages Azure cloud computing capability and a \$ 20,000 grant support under the Azure for Research program at the Microsoft Edu Day2018

Now in its third edition, [Edu Day](#) is the largest Microsoft event dedicated to School, University and Research, with the aim of exploring the new digital frontiers of teaching. A one-day information-training event dedicated to teachers, principals, researchers, university professors and students of all ages, to discover the potentials and challenges related to the evolution of today's school and the future. Over 100 universities and research institutes involved in activities on Microsoft technologies to **reduce time to science**. Free Cloud and AI resources have been made available.

"Microsoft Edu Day aims to explore the new frontiers of teaching and new personalized teaching experiences: over 1,200 people and 25 classes of students were the protagonists of debates and innovative stories such as the 5A of the Cremona Un Comprehensive Institute, which showed an exemplary project developed thanks to the Minecraft Education Edition, the educational videogame used in over 115 countries. Starting from a study of the area and using the advice of a construction engineer, the students have in fact digitally reconstructed the bridge over the Po river in Cremona and the surrounding area. However, Microsoft's commitment is not only dedicated to younger students, but also to universities and research: thanks to the Azure for Research program, free storage, computing and AI resources on the Azure cloud platform are made available to undergraduates, PhD students and researchers to accelerate research projects important for the community such as the one presented by Fondazione Bruno Kessler which, thanks to the Azure cloud computing capacity, has developed a **machine learning platform for Precision Medicine**, "commented Francesco Del Sole, Director of Education Division of Microsoft Italia.

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In particular, the [Predictive Models for Biomedicine and the Environment Research Unit](#) led by **Cesare Furlanello**, head of the Data Science Area of FBK's ICT center, was able to benefit from the computing power of Microsoft's cloud, developing algorithms for reproducibility in the search for biomarkers, simulating thousands of alternative models and evaluating their robustness when changing the different systems of production of genomic data and their preprocessing, to integrate them with information from radiological or tissue images.

Currently the FBK unit is experimenting with new systems to more easily distribute model calculations in the cloud, making it possible to multiply the number of experiments and thus develop accurate deep learning solutions for medical research and pharmacogenomics on increasingly complex databases. In particular, FBK contributes to this research by developing predictive models for clinical analytics in pediatric oncology, for example in infant neuroblastoma and in brain tumors, with a collaboration with the Bambino Gesù Pediatric Hospital in Rome. A second deep learning project, completed thanks to the Azure cloud platform, deals with agriculture. FBK is in fact developing deep learning applications for the nowcasting of rainfall maps using weather radars and for the estimation of the quality of agricultural production starting from portable spectrometry.

The event will also be attended by President Francesco Profumo, who will present the FBK strategic plan on Artificial Intelligence.

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<https://magazine.fbk.eu/en/news/fbk-and-microsoft-together-for-precision-medicine/>

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