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Artificial Intelligence and Research Use of Health Data: Finland's University of Turku ECCB Conference on Computational Biology

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How can sensitive health data be used responsibly in scientific research or how can artificial intelligence help make breakthroughs in medical research? The ECCB2024 conference brings together current themes in computational biology and international researchers in Turku, Finland.

Europe's largest scientific conference on computational biology **ECCB (European Conference on Computational Biology)** is held in Turku on 16–20 September. The event brings together more than 750 researchers and experts in computational biology, system biology, bioinformatics, artificial intelligence, biology and medicine from around the world.

Biology increasingly needs information technology, and computational methods are important in life science research. Finland is one of the European leading countries in scientific computing and has long term expertise in developing such systems. They enable the utilisation of large datasets and can be used to teach artificial intelligence. This can result in breakthroughs, such as completely new medicines or well-targeted treatments for diseases. The ECCB programme focuses on methodological advances and new methods in computational biology and their innovative application in life sciences and medicine.

ECCB is Europe's largest event in bioinformatics and computational biology. It is now being organised for the 23rd time and for the first time in Finland and the Nordic countries.

The event is organised jointly by University of Turku and CSC – IT Center for Science, which represent science as well as science infrastructures and data management – both needed for the whole to function. University of Turku has strong scientific expertise, and Laura Elo, Professor of Computational Medicine at University of Turku, chairs the scientific committee of the conference. CSC is an internationally renowned expert in scientific computing and data management. CSC's data center in Kajaani, Finland, houses Europe's most powerful supercomputer LUMI.

> "At the ECCB2024 conference, we provide a comprehensive overview of the latest research directions and methods in computational biology. We have brought together experts from 48 different countries to present their work, and based on more than 200 research articles submitted, we have compiled a special issue for the Bioinformatics journal. The conference highlights some of the most recent advances in the field, including novel applications of artificial intelligence and single-cell technologies, which are transforming how we utilise extensive biological and medical data in research," says

Laura Elo.

Debate: Two Perspectives on the Use of Health Data

The use of sensitive health data in research is a topic that stimulates considerable debate in both Finland and abroad. The ECCB2024 organisers want to include the views of bioinformatics researchers in the discussion. Tommi Nyrönen, Head of ELIXIR Finland, which is run by CSC, will moderate a debate on Thursday 19 September at 4–5 p.m. that features two international top researchers.

> "Protecting privacy of individuals is important in the use of human biological data for research and development. To better understand the benefits and risks, we have invited two leading experts from the EU and the United States to present their views and discuss the use and sharing of data," Tommi Nyrönen says.

Belgian Yves Moreau is a professor of bioinformatics at the University of Leuven and an active social commentator with particular concern for ethical issues in the use of human biological data. He will share the stage with Dr. Melissa Haendel from the University of North Carolina, who highlights the importance of data availability in research and the possibilities of using artificial intelligence.

> "The increasing availability of data about patients, populations, and organisms has realized novel computational methods for disease insights, identifying new causes and therapies. However, with these opportunities also comes great responsibility – artificial intelligence requires ethical application and the data must be protected for patient privacy", Haendel says.

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