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# Postdoctoral Researcher in the field of cancer data science

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Postdoctoral Researcher in the field of cancer data science

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from 01.04.2025 until 01.09.2027 or according to agreement.

A 2.5-year postdoctoral position with flexible starting date is available in the Cancer Data Science group led by Mariiike Kuijjer at iCAN Flagship in Digital Precision Cancer Medicine, Department of Biochemistry and Developmental Biology, at the Faculty of Medicine, University of Helsinki. The project will focus on using and extending deep learning-based approaches developed within the group to integrate bulk multi-omics cancer data. The Kuijjer group, established in 2018 at the University of Oslo, recently expanded to the University of Helsinki. The group specializes in developing computational methods to understand the regulatory mechanisms driving cancer heterogeneity and progression by integrating genomic data into genome-wide regulatory networks. Current projects include (i) modeling distal regulatory interactions, (ii) modeling networks based on single-cell and spatial omics data, and (iii) integrating regulatory profiles with multi-modal data. These efforts aim to uncover regulatory mechanisms behind cancer and to develop predictive models of cancer outcomes and treatment resistance. For more information, visit [kuijjerlab.org](https://kuijjerlab.org).

## About the Role

The advertized project focuses on implementing a hierarchical Variational Autoencoder (VAE) framework to integrate bulk multi-omics cancer data. Developed by the Kuijjer group to integrate multi-modal single-cell data, this framework incorporates biological data dependencies to model variability at both joint and data type-specific levels, providing insights into regulatory mechanisms. The research will leverage a large in-house dataset from iCAN, complemented by publicly available data, to examine transcriptomic dependencies on transcription factor abundance and/or somatic mutations. These efforts aim to enable pan-cancer subtyping and uncover regulatory processes contributing to cancer and cancer outcome.

## Qualifications

The position is open to applicants with a PhD degree in computational biology, bioinformatics, computer science, biostatistics, cancer genomics, network science, or related fields. Candidates who are completing their PhD thesis are welcome to apply and should mention the expected date of their defense and any remaining steps to completion in their cover letter. The degree requirement must be met by the beginning of the employment. The employer does not offer a visa or residence permit in Finland while employed by the University of Helsinki.

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We seek a highly motivated candidate with strong analytical and problem-solving skills with the ability to develop and maintaining computational tools for biological data analysis. Proficiency in programming, experience with high-performance computing and GPU acceleration tools (e.g. CUDA), and deep learning frameworks such as TensorFlow or PyTorch is a requirement for this position. Experience with VAEs or related frameworks,

statistical analysis of high-throughput omics data, comparative genomics, functional genomics, or related fields is a strong advantage. Knowledge in multi-modal data integration, gene regulation, cancer, and/or network biology is considered a plus.

The ideal candidate is enthusiastic about developing and using computational tools to address questions in cancer research. They should be collaborative, creative, and capable of working both independently and as part of a team within a multidisciplinary research environment spanning two Nordic countries, with active groups in Helsinki and Oslo.

## What we offer

We offer the opportunity to work on cutting-edge data science projects funded by the iCAN Flagship in Digital Precision Cancer Medicine. You will be part of a dynamic, interdisciplinary research environment, collaborating with experts in computational biology, cancer research, and precision medicine. Our group is embedded in iCAN and connected to an active and welcoming computational biology community across the Nordics, providing opportunities for networking, training, and collaboration.

As a postdoctoral researcher in our group, you will have the chance to develop novel computational approaches, analyze large-scale multi-omics datasets, and contribute to research with direct relevance to human health. The position provides an excellent opportunity to advance your career in cancer data science, deep learning, and systems biology, with possibilities for professional growth and skill development.

The University of Helsinki offers comprehensive services to its employees, including occupational health care and health insurance, unemployment and pension fund, a generous holiday package, sports facilities, and opportunities for professional development: <https://www.helsinki.fi/en/about-us/careers>.

This is a full-time position with possibility of extension, subject to future funding. Salary is based on the university salary system, approximately 3600-4200 €/month depending on experience and qualifications.

## How to apply

Applications should be submitted in English through the University of Helsinki Recruitment System. **We use cookies to enhance your browsing experience, to analyze and improve our website, and to assist in our marketing efforts. For more information on how we use cookies, please see our Cookie Policy.** **Internal applicants (i.e., current employees of the University of Helsinki) submit their applications by using the Employee Login button.** **Please submit your application as a single pdf file, comprising the following documents in English:**

- A motivation letter outlining your previous knowledge and research interests, career goals, your motivation of applying to this specific position, and your expectations of the

position.

- A complete Curriculum Vitae, including a list of publications and 2-4 referees.
- Certificates/Diplomas: Scanned copies of your PhD diploma.

**The closing date for applications is 31.3.2025.**

Contact Mariike Kuijjer for Further Information: [mariike.kuijjer@helsinki.fi](mailto:mariike.kuijjer@helsinki.fi).

The University of Helsinki welcomes applicants of any gender and age, linguistic or cultural background, or minority group.

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### About us

The Faculty of Medicine promotes high quality scientific research. It provides research-based undergraduate and postgraduate education in medicine, dentistry, psychology and logopedics, and an international Master's Programme in Translational Medicine. It also offers psychotherapist education. In addition to its teaching and research activities, the faculty serves as a significant expert organisation in the healthcare sector and contributes to the discourse on ethics in the field. The faculty aims to be one of the best medical research faculties in the world, while reinforcing its status as a distinguished institution of multidisciplinary education in healthcare.

The Faculty of Medicine at the University of Helsinki constitutes the academic medical centre together with HUS Helsinki University Hospital and the Helsinki Institute of Life Science (HiLIFE). This medical centre has been successful in international comparisons, ranking among the top 10 medical campuses in Europe and the top 50 globally.

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## Open position

**Due Date:** 31.3.2025

**Unit:** Faculty of Medicine

**Sub-unit:** Medicum

**ID:** 3857

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## Any questions?

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