PhD position in probability

Main advisor: Pierre Nyquist.

Doctoral program: Mathematics

Chalmers University of Technology and University of Gothenburg

The Department of Mathematical Sciences is a joint department between Chalmers and the University of Gothenburg. It has about 200 employees and is one of the largest departments of mathematical sciences in the Nordic countries. The department consists of three divisions—Algebra and Geometry, Analysis and Probability, Applied Mathematics and Statistics—with plenty of overlaps in interests and collaborations between the divisions.

Chalmers University of Technology has grown to become one of Europe's leading technical and engineering universities, as well as a key center of intellectual talent and innovation. It is one of the premiere technical research and learning institutions in Sweden and home to students, researchers and faculty from around the world. The research and education covers a wide area including natural sciences and all branches of engineering, as well as in architecture, industrial management, urban planning, history and philosophy.

The University of Gothenburg is home to 56 000 students and 6 600 employees, making it a large and inspiring place to work and study. Strong research and attractive study programmes attract researchers and students from around the world in a wide range of disciplines. With new knowledge and new perspectives, the University contributes to a better future.

Job description

I am recruiting at least one doctoral student in probability theory, broadly interpreted, to work under my supervision. The direction of the project will be determined together with the incoming student, potential topics include but are not limited to: large deviation theory; high-dimensional probability; theory of Markov processes; Monte Carlo methods, particularly Markov chain Monte Carlo; stochastic optimisation; optimsation over random structures; computational hardness; metastability; gradient flows; stochastic optimal control. An overall theme of interest is questions in probability theory and analysis related to sampling, optimisation and learning problems in high dimensions.

You will be joining a group, under my supervision, currently consisting of three graduate students, with at least one more joining this upcoming fall and potentially also a postdoc (if not this year, then in 2026), with plenty of international collaborations. Locally, we are part of a strong community of researchers at the intersection of probability, mathematical statistics, optimisation, and computational mathematics, working on both pure and applied questions. There will also be plenty of opportunities to join in international collaborations and to do research visits and longer stays at research institutes abroad as part of this.

Students with a strong background in mathematics in general, and an interest in topics related to probability and analysis, are encouraged to apply. There are no formal requirements about previous experience in specific areas; if you have questions about how your background and interests might fit you are welcome to reach out via email. Candidates from historically underrepresented groups are especially encouraged to apply.

The position is a time-limited, full-time, five year position starting August 2024 or at an agreed upon date. The position is fully funded for four years and will be extended to five years by assigning teaching duties.

It also includes travel support and possibilities for longer research visits abroad. Within the Department of Mathematical Sciences at Chalmers and the University of Gothenburg, the successful candidate will be part of vibrant and diverse groups in Probability and Analysis, and Applied Mathematics and Statistics. There will also be opportunities for interactions with activities and members of Chalmers AI Research Center (CHAIR), and researchers in other departments, such as Computer Science and Electrical Engineering, with overlapping research interests.

Application

Official ad:
    https://www.gu.se/en/work-at-the-university-of-gothenburg/vacancies.
All applications must be submitted via the online recruitment system in order to be considered. Interested students are encouraged to contact me at any time for an informal chat about the position.

General information

Type of employment: Temporary position longer than 6 months.
Contract type: full-time.
First day of employment: 1 August 2025 or at an agreed upon date.
Contact: Pierre Nyquist, Associate Professor, Email: pnyquist@chalmers.se
Application Submission Deadline: February 24, 2025.