



The University of Helsinki is an international scientific community of 40,000 students and researchers. It is one of the leading multidisciplinary research universities in Europe and ranks among the top 100 international universities in the world.

The Department of Computer Science (<https://www.helsinki.fi/en/computer-science>), which is part of the Faculty of Science, is a leading Computer Science research and teaching unit in Finland. The research themes of the Department cover machine learning and algorithms, computer networks and distributed systems, software systems and bioinformatics.

The Department of Computer Science, Faculty of Sciences, University of Helsinki invites applications for a

Doctoral Student in Algorithms & Bioinformatics

Position description

The research group of Academy Research Fellow Dr. Alexandru Tomescu is seeking for a PhD candidate in the areas of graph algorithms, combinatorial optimization, efficient data structures, with applications to bioinformatics. The position is funded by a recent ERC Starting Grant on “Safe and Complete Algorithms for Bioinformatics”. The candidate will join a new research group that will be formed of 2-3 other PhD students and 2 Postdocs, with strong links to the broad Algorithmic Bioinformatics community in Helsinki.

Our research is at the intersection of theoretical and practical computer science, with a potential to make significant progress in both. Our new approach is, given a computational problem, to look at those parts of a solution that are common to all solutions. We call these *safe*, because we can ultimately trust them to be part of the correct solution. We plan to develop efficient safe algorithms for a range of graph problems, and apply them to real bioinformatics problems, such as genome assembly, RNA transcript assembly, and sequence alignment in pan-genome graphs. This changes the way we approach real-world problems, and could spur a new line of research in computer science / bioinformatics.

The starting date is negotiable.

Requirements

The work involves research-related activities, including conducting theoretical and applied research, data analysis, writing research articles, participating in and presenting research at academic conferences, and teaching-related activities. You are also requested to do short stays abroad at our collaborators.

The ideal candidate has a strong background in algorithms, with a focus on graph algorithms and data structures. The following constitute an advantage, but are not required:

- Experience in implementing efficient code.
- Experience with handling high-throughput DNA sequencing data.
- Achievements at international programming contests such as IOI or ACM ICPC.

- Previous research experience and publications.

Excellent written and oral communication skills in English are needed.

Applicants should have a MSc in computer science, bioinformatics or a related field.

Applicants who do not currently hold a doctoral student status in the Doctoral Programme in Computer Science at the University of Helsinki are eligible to apply, but in the event of hiring, they are expected to acquire the status during the standard 6-month probationary period.

Salary and benefits

The position is full-time and funded for four years. For a doctoral student, the starting salary is 2200–2650 euros/month, depending on previous qualifications and experience. The University of Helsinki offers comprehensive services to its employees, including occupational health care and health insurance, sports facilities, and opportunities for professional development. The International Staff Services office (<https://www.helsinki.fi/en/university/working-at-the-university>) assists employees from abroad with their transition to work and live in Finland.

How to apply

Please send the following documents:

- CV with possible publications
- Cover letter describing motivation and research interests
- Contact details of two potential referees who agreed to provide letters of recommendation

as an e-mail to alexandru.tomescu@helsinki.fi with the subject line “Application for PhD position”.

Applications will be given full consideration if received by **October 15, 2019**.

Applications received after this date will still be considered, until the position is filled.

Additional information

For more information on the position, please contact the group leader Alexandru Tomescu (alexandru.tomescu@helsinki.fi).

For more information on the Doctoral Programme in Computer Science (DoCS), please visit <https://www.helsinki.fi/en/research/doctoral-education/doctoral-schools-and-programmes/doctoral-school-in-natural-sciences/doctoral-programme-in-computer-science>.

And here are some good reasons to move to Finland: http://www.stat.fi/tup/satavuotias-suomi/suomi-maailman-karjessa_en.html