

Two (2) Doctoral Researcher positions in Super-Resolution Microscopy and Single Molecule Tracking  
Aalto University

Direct Link: <https://www.AcademicKeys.com/r?job=246085>

Downloaded On: Oct. 5, 2024 5:10am

Posted Sep. 30, 2024, set to expire Jan. 30, 2025

<b>Job Title</b>	Two (2) Doctoral Researcher positions in Super-Resolution Microscopy and Single Molecule Tracking
<b>Department</b>	T314 Dept. Neuroscience and Biomedical Engineering
<b>Institution</b>	Aalto University , , Finland
<b>Date Posted</b>	Sep. 30, 2024
<b>Application Deadline</b>	Open until filled
<b>Position Start Date</b>	Available immediately
<b>Job Categories</b>	Graduate Student
<b>Academic Field(s)</b>	Bioengineering (all Bio-related fields)
<b>Job Website</b>	<a href="https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Two--2--Doctoral-Researcher-positions-in-Super-Resolution-Microscopy-and-Single-Molecule-Tracking_R41003">https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Two--2--Doctoral-Researcher-positions-in-Super-Resolution-Microscopy-and-Single-Molecule-Tracking_R41003</a>

**Apply By Email**

**Job Description**

Aalto University is a community of bold thinkers where science and art meet technology and business. We are committed to identifying and solving grand societal challenges and building an innovative future. Aalto has six schools with nearly 11 000 students and a staff of more than 4000, of which 400 are professors. Our main campus is located in Espoo, Finland. Diversity is part of who we are, and we actively work to ensure our community's diversity and inclusiveness in the future as well. This is why we warmly encourage qualified candidates from all backgrounds to join our community.

The [url=https://www.aalto.fi/en/department-of-neuroscience-and-biomedical-engineering/single-molecule-dynamics-in-cells]Single-Molecule Dynamics in Cells group at the [url=https://www.aalto.fi/en/department-of-neuroscience-and-biomedical-engineering]Department of

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Neuroscience and Biomedical Engineering at Aalto University School of Science is looking for

Two Doctoral Researchers in Super-Resolution Microscopy and Single Molecule Tracking

The project will investigate the biophysical mechanisms of cellular adaptation to environmental stresses and developing new methods to quantify and understand single molecule dynamics.

Many microorganisms can withstand severe environmental stresses, e.g. extreme temperatures, while maintaining cellular homeostasis and sub-cellular organization. To study this, we use state-of-the-art super-resolution microscopy and single molecule tracking to record the movement of individual molecules inside individual live cells. Single molecule dynamics reports on the molecular interactions in real-time, acting as a probe for changes in the cellular environment. The obtained knowledge will help us to understand microorganisms' adaptation to different environments and the limits of cellular life. The research will also contribute to the development of synthetic biology applications and novel assay solutions.

### Your role and goals

We are looking for an enthusiastic and motivated doctoral researchers who are interested in applying and/or analyzing data from super-resolution microscopy and single particle tracking to study intracellular life of bacteria. You will contribute to some of the following areas: experimental work in the laboratory, imaging using a custom TIRF microscope, data analysis, machine learning, and modelling. You will adapt existing and develop novel methods and protocols to collect and analyse scientific data from a variety of sources so that hypotheses can be tested, reviewed and refined. You will also carry out collaborative projects with colleagues within our group and from other institutions. You are proactive, self-directed researcher who manages your projects effectively and presents the results at internal and external meetings and seminars.

You will work full time on the doctoral research and to complete the thesis and the associated studies in four years. The doctoral degree consists of the student's research project resulting in peer-reviewed publications, studies specific to the research field, as well as transferable skills training.

### Your network and team

The Department of Neuroscience and Biomedical Engineering (NBE) aims to understand system-level dynamic functions of the human brain, mind, and body. We develop spearheading technology and computational methods which pave the way for discoveries and breakthroughs that contribute to health and wellbeing. NBE brings together systems and cognitive neuroscience, biophysics, and biomedical engineering. The levels of description in the research and education at the department range from molecular and cellular measures to noninvasive neuroimaging and behavioral measurements. New

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generations of multidisciplinary scientists and engineers are educated by engaging them with cutting-edge science and technology.

Your supervisor will be Assistant Prof. Jarno Mäkelä who is the head of the Single-Molecule Dynamics in Cells group. He has assembled a multidisciplinary team of experts in microbiology, biochemistry, microscopy, biophysics, and computer science, providing a collaborative environment for researchers to gain hands-on experience in cutting-edge microscopy, experimental lab work, data analysis and modelling. The team works on multiple topics at the interface of physics, chemistry, and biology: intracellular spatial organization, macromolecular crowding, liquid-liquid phase separation, heat- and cold-shock protein dynamics, and proteomics. You will be embedded in a highly supportive and stimulating research environment, where you will have the opportunity to receive excellent academic training and develop key skills for the future as an independent researcher.

Your experience and ambitions \* MSc in biophysics, biotechnology, computational biology, or other relevant fields \* Solid understanding of biology \* Experience with at least one of the following is expected: fluorescence microscopy, signal processing, image analysis, machine learning or mathematical modelling \* Coding skills (Python/Matlab or similar) to process and analyze experimental data \* Ability and interest to work results-oriented in an interdisciplinary team \* High self-motivation and persistence in tackling challenging scientific problems \* Good written and oral communication skills in English (Finnish language is not required).

The Doctoral researcher applicants must fulfill the admission requirements for the Aalto Doctoral Programme in Science. Selected candidate is expected to apply for and to be granted a right to pursue doctoral studies at Aalto University. More information on the general requirements and the Doctoral Programme in Science [[url=https://www.aalto.fi/en/node/175081](https://www.aalto.fi/en/node/175081)]<https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-science-0> Please check the student information, admission criteria and pay attention to the required (English) language proficiency.

### What we offer

We offer you an interesting job in an inspiring work environment. You will be able to work in a community where we promote personal growth, collaborative atmosphere, transparency in communication. We will familiarize you with your tasks and you will be part of a friendly and competent team that will provide you with support for your work tasks, also in the future.

The total duration of Ph.D. studies is four (4) years. Following the standard Aalto's practice the Doctoral researcher position contract will be made initially for two years, then extended to another two years after a successful mid-term progress review.

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Aalto University follows the salary system of Finnish universities. The starting salary of the selected doctoral researcher in this project is approximately 2746 EUR/month (gross), and it will increase with achievements, such as scientific publications.

The position will be full time and the annual workload of research and teaching staff at Aalto University is 1612 hours. The contract includes Aalto University occupational healthcare. We value work-life balance and the well-being of all team members.

In addition, Aalto University offers a vast array of professional development opportunities, which means you will grow and learn, having the chance to participate actively in staff trainings and development projects based on your interests and needs.

The primary workplace is Otaniemi campus at Espoo, Finland, which is a thriving and connected community of 100 nationalities, 13,000 students and 4,500 employees. Life at the transformed campus is vibrant and filled with amazing architecture, calming nature, and a variety of cafes, restaurants, services and good connections.

Ready to apply?

To apply, please submit the following application materials in English (PDF files) through our recruitment site ("Apply now!") \* Letter of motivation (clearly describe your research interests, how you would contribute to the project, and how you fulfill the above-listed requirements) \* CV (max 2 pages) including a list of publications \* Study transcript provided by the applicant's university that lists studies completed and grades achieved \* Degree certificates \* Contact details of at least two referees

The deadline for applications is 31 October 2024 (Finnish time, UTC +2h).

Please note: Aalto University's employees should apply for the position via our internal HR system Workday (Internal Jobs) by using their existing Workday user account (not via the external webpage for open positions). Aalto University's students and visitors should apply as external candidates with personal (not aalto) email.

The position will be filled as soon as a suitable candidate is identified.

For additional information, kindly contact Prof Jarno Mäkelä ([jarno.p.makela@aalto.fi](mailto:jarno.p.makela@aalto.fi)). Recruitment system related matters you may contact HR partner Jenni Ståhl [jenni.stahl@aalto.fi](mailto:jenni.stahl@aalto.fi).

Aalto University reserves the right for justified reasons to leave the position open, to extend the

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application period, reopen the application process, and to consider candidates who have not submitted applications during the application period.

We will go through applications, and we may invite suitable candidates to interview already during the application period. We aim to have a transparent and equal recruitment process, so feel free to ask us for feedback.

### About Finland

Finland is a great place for living with or without family - it is a safe, politically stable and well-organized Nordic society. Finland is consistently ranked high in quality of life and was just listed again as the happiest country in the world: [[url=https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/](https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/)]<https://worldhappiness.report/news/its-a-three-peat-finland-keeps-top-spot-as-happiest-country-in-world/>. For more information about living in Finland: [[url=https://www.aalto.fi/services/about-finland](https://www.aalto.fi/services/about-finland)]<https://www.aalto.fi/services/about-finland>

More about Aalto University:

[Aalto.fi](https://www.aalto.fi)

[twitter.com/aaltouniversity](https://twitter.com/aaltouniversity)

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[instagram.com/aaltouniversity](https://instagram.com/aaltouniversity)

Aalto University has been awarded with HR Excellence in Research quality label in European Commission, guaranteeing that we adhere to top quality HR practices in both recruitment and employment relations.

### Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

### Contact

Finland