

Doctoral Researcher position in Statistical analysis of
energy use in buildings and AI
Aalto University

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Posted Jan. 17, 2024, set to expire Dec. 30, 2024

Job Title Doctoral Researcher position in Statistical analysis of
energy use in buildings and AI

Department T214 Civil Engineering

Institution Aalto University
, , Finland

Date Posted Jan. 17, 2024

Application Deadline Open until filled

Position Start Date Available immediately

Job Categories Graduate Student

Academic Field(s) Civil Engineering

Job Website https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-position-in-Statistical-analysis-of-energy-use-in-buildings-and-AI_R38395

Apply By Email

Job Description

Doctoral Researcher position in Statistical analysis of energy use in buildings and AI

Aalto University is where science and art meet technology and business. We shape a sustainable future by making research breakthroughs in and across our disciplines, sparking the game changers of tomorrow and creating novel solutions to major global challenges. Our community is made up of 12 000 students, 400 professors and close to 4 000 other faculty and staff working on our dynamic campus in Espoo, Greater Helsinki, Finland.

We believe that people from diverse backgrounds can together reach the best results. Diversity is part of who we are. Over 40% of our academic faculty come from outside Finland. We warmly encourage

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qualified candidates from all backgrounds to apply, as we want to ensure the continued diversity and inclusiveness of our community. Aalto is committed to equal and transparent recruitment procedures.

At Aalto, high-quality research, art, education and entrepreneurship are promoted hand in hand. Disciplinary excellence is combined with multidisciplinary activities, engaging both students and the local innovation ecosystem. Our main campus is quickly transforming into an open collaboration hub that encourages encounters between students, researchers, industry, startups and other partners. Aalto University was founded in 2010 as three leading Finnish universities, Helsinki University of Technology, the Helsinki School of Economics and the University of Art and Design Helsinki, were merged to strengthen Finland's innovative capability.

Aalto University School of Engineering invites applications for

Doctoral Researcher position in Statistical analysis of energy use in buildings and AI, with application to HVAC control and connection to the grid

Research

The Departments of Civil and Mechanical Engineering at the Aalto University are offering a Doctoral Researcher position in research on Statistical Analysis of Energy Use in Buildings. The goal of the research is to integrate Machine Learning (ML) and Artificial Intelligence (AI) techniques to optimize the energy efficiency and performance of HVAC systems in view of their connection to the grid. Previous research projects have collected a large amount of historical data that can already be used for analysis, with operational data provided by new projects. The research will entail profiling the occupancy impact on energy use and HVAC control, and the resulting connection with the electricity grid and district heating. Emphasis will be given to the modelling aspect with novelty ambition.

Development opportunities for both bottom-up and top-down approaches will be provided by ongoing and future international research projects.

Research Group

The Doctoral Researcher position is located in the research groups of Performance in Building Design and Construction, [[url=https://www.aalto.fi/en/department-of-civil-engineering/performance-in-building-design-and-construction](https://www.aalto.fi/en/department-of-civil-engineering/performance-in-building-design-and-construction)]<https://www.aalto.fi/en/department-of-civil-engineering/performance-in-building-design-and-construction> and Energy Conversion and Systems, [[url=https://www.aalto.fi/en/department-of-mechanical-engineering/energy-conversion-and-systems](https://www.aalto.fi/en/department-of-mechanical-engineering/energy-conversion-and-systems)]<https://www.aalto.fi/en/department-of-mechanical-engineering/energy-conversion-and-systems> .

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Requirements

Required background: A Master's degree in engineering, computer science or related disciplines, preferably with excellent or very good grades.

Expected skills and knowledge: * Knowledge of Python, R or any other software that is suitable for data analysis and statistical inference. You must be able to do data cleanup and e.g. clustering and distribution fitting. * Fluency in English, scientific writing, good interaction skills with project members are required.

Desired skills and knowledge: * Knowledge of at least one of the following simulation software: IDA ICE, EnergyPlus, TRNSYS, MATLAB, MagiCAD, COMSOL. * Previous experience / knowledge in the energy efficiency of buildings. * Previous experience / knowledge in HVAC design. * Scientific publications. * At least 90% of the final MSc grades.

Contract and salary

Aalto University applies the salary system of Finnish universities. Currently, the starting salary for doctoral students is slightly above 2600€ per month and is increased with the progress towards the doctoral degree to over 3300€ per month. The position is contract-based. The financing is subject to the availability of funding.

The position is for two years, with the possibility of extension for another two years. There will be a compulsory midterm review which will be completed during the second year. More info here [\[url=https://www.aalto.fi/en/programmes/aalto-doctoral-programme-in-engineering/midterm-review-of-doctoral-studies-eng?check_logged_in=1\]](https://www.aalto.fi/en/programmes/aalto-doctoral-programme-in-engineering/midterm-review-of-doctoral-studies-eng?check_logged_in=1)https://www.aalto.fi/en/programmes/aalto-doctoral-programme-in-engineering/midterm-review-of-doctoral-studies-eng?check_logged_in=1

The applicant for doctoral studies must satisfy the admission requirements of Aalto University: [\[url=https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering\]](https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering)<https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering>

In a maximum of four years, the doctoral candidate is required to 1) complete the doctoral dissertation, 2) finish relevant courses for 40 ECTS credits, 3) participate in teaching and 4) participate in further research collaborations of the research groups.

The position may not be opened if no qualified candidate is found.

For more information

For further details, please contact Assistant Professor Andrea Ferrantelli,

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[url=mailto:andrea.1.ferrantelli@aalto.fi]andrea.1.ferrantelli@aalto.fi. For submission related queries, contact [url=mailto:merja.seppanen@aalto.fi]merja.seppanen@aalto.fi

How to apply

The applications for the Doctoral Candidate position are to be submitted through the eRecruitment system Workday (link 'Apply' below). Please apply as soon as possible. The position will be filled as soon as a suitable candidate has been identified. The submission deadline is January, 29th 2024.

We will go through all applications, and we may invite suitable candidates for an interview already during the application period. We expect you to start in April 2024 or soon afterwards on site, in the Otaniemi campus (Finland).

Please note: Aalto University's employees and visitors should apply for the position via our internal system Workday -> find jobs (not external aalto.fi webpage on open positions) by using their existing Workday user account.

Required application documents * CV, include names of two referees * A certified copy of master's and bachelor's degree certificate and official transcript of records, and their translations, if the originals are not in Finnish, Swedish or English. (Minimum average grading requirements:

[url=https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering]https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering * A list of publications, if any * A summary of the master thesis and accounts for suitability of the candidate for this doctoral candidate position. Maximum one A4 page is allowed for the document. Proof of proficiency in Finnish, Swedish or English, if the applicant is not a native speaker of or educated in any of them. (Language skill proof requirements): [url=https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering]https://www.aalto.fi/en/study-options/aalto-doctoral-programme-in-engineering

All material should be submitted in English and in PDF format.

Aalto University reserves the right for justified reasons to leave the position open, to extend the application period and to consider candidates who have not submitted applications during the application period.

For more information about living in Finland: [url=https://www.aalto.fi/services/about-finland]https://www.aalto.fi/services/about-finland

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Contact Information

Please reference Academickeys in your cover letter when
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Contact

Finland