

## Doctoral Researcher in AI-assisted Product Development Aalto University

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Posted Sep. 9, 2024, set to expire Jan. 9, 2025

<b>Job Title</b>	Doctoral Researcher in AI-assisted Product Development
<b>Department</b>	T212 Mechanical Engineering
<b>Institution</b>	Aalto University , , Finland
<b>Date Posted</b>	Sep. 9, 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>	Mechanical Engineering Computer Science
<b>Job Website</b>	<a href="https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-in-AI-assisted-Product-Development_R40768">https://aalto.wd3.myworkdayjobs.com/aalto/job/Otaniemi-Espoo-Finland/Doctoral-Researcher-in-AI-assisted-Product-Development_R40768</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 School of Engineering is one of the six schools of Aalto University. The main task of the School of Engineering is to renew technologies related to the technical industry and the built environment through scientific research, technological innovation and inspiring education. Our objective is to create

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new knowledge, information and solutions to serve the goals of sustainable development. Our research topics are highly relevant to the surrounding society, connecting theory with practice. Collaborative projects with the technological industry and the surrounding society have been a trademark for decades. Our research focus areas are Multidisciplinary Energy Technologies, Sustainable Built Environment, Marine and Arctic Technology, Mechanics and Materials, and Systems Design and Production.

The Department of Mechanical Engineering at the Aalto University School of Engineering invites applications for a  
Doctoral Researcher in AI-assisted Product Development

Product development processes are mainly human-driven. Have you ever wondered if AI (i.e., machine learning) can help us design innovative and sustainable products that truly satisfy critical customer needs?

The Materials to Products research group ([\[url=https://www.aalto.fi/en/departement-of-mechanical-engineering/materials-to-products\]](https://www.aalto.fi/en/departement-of-mechanical-engineering/materials-to-products)<https://www.aalto.fi/en/departement-of-mechanical-engineering/materials-to-products>) is now looking for a doctoral researcher (“PhD student”) in AI-assisted product development.

The work will commence in the AI-assisted 3D-printing for Zero Defect and Zero Waste Manufacturing (AIM-Zero) project that seeks to enhance user-centered design for novel product development and sustainability. In particular, the project aims to develop a novel process for evaluating in-situ defect detection and self-healing in metal additive manufacturing using for example x-ray computed tomography, infrared optical tomography, and machine learning methods. In this position, you will have a chance to make an impact by shifting the performance frontier of novel product design and development. This project is conducted in partnership with Electro Optical Systems (EOS) Finland Oy (The world’s leading technology supplier in the field of industrial 3D printing of metals and polymers).

Our industries are at the verge of Human-AI collaboration with the focus on minimum viable data for training the machine learning algorithms that allow for unprecedented pattern and regularity detection helping us understand the process or yield predictions. This position will allow you to apply machine learning knowledge, e.g. in need-finding, ideation, prototyping, and testing phases, to stay at the forefront of this paradigm shift translating into significant industrial relevance in terms of introducing new innovations and reducing resource waste.

Your role and goals

Completing a doctoral degree at Aalto University is expected to take four years. The doctoral degree is

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granted after successfully completing a set of advanced courses (40 ECTS), writing a doctoral thesis (based on peer-reviewed journal publications), and defending the thesis in a public examination. For this specific position, the doctoral candidate will be expected to perform independent research, to present at scientific conferences, to publish in academic journals, to apply for research funding, to participate in the activities of the research group, and to assist in teaching activities (max 5% of working hours).

### Your network and team

The successful applicant will join a team of world-class researchers at Aalto University's School of Engineering.

At the Department of Mechanical Engineering, about 300 staff members with 28 tenure track professors research, teach, develop, and create solutions targeting social needs and shaping a safe and efficient future generation of materials, manufacturing, structures, machines, ships, energy flows and systems. The department's multidisciplinary research converges on the arctic technology, sustainable energy vectors, and digital twin world. The focus areas of education are in mechanics and energy science and technology. The Department has strong links to industry and generates growing impact that can be seen in business and society. The demographics of the Finnish economy drive the industry to search for growth with innovations in the global market.

(<https://www.aalto.fi/en/department-of-mechanical-engineering>]<https://www.aalto.fi/en/department-of-mechanical-engineering>)

The position will be filled in the Materials to Products (M2P) research group

(<https://www.aalto.fi/en/department-of-mechanical-engineering/materials-to-products>]<https://www.aalto.fi/en/department-of-mechanical-engineering/materials-to-products>). You will join the Professor of Product Development Jan Akmal's research team. You are supported by infrastructure and experts, e.g., machine shop, electro shop, and print shop and flexible learning spaces of the Aalto Design Factory, Aalto Digital Design Laboratory, Aalto K2 Machine shop, Aalto House of AI, and potential industrial partners.

### Your experience and ambitions

The call is open for candidates with previous experience in computer-aided design, finite element analysis, generative design, artificial intelligence/machine learning, additive manufacturing technologies (e.g., metal laser-based powder bed fusion), python (e.g., TensorFlow, PyTorch, Scikit-learn, etc.), statistics, user-centered product development (e.g., design thinking), or in another relevant area. The experience should be demonstrated by evidence of success in related studies, and ideally also by some publication record. Other merits demonstrating suitability for a doctoral researcher position can also be considered. Experience in writing research proposals for funding acquisition is an

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asset. Candidates should have an initiative-taking approach, should pay attention to details, should have high aptitude in continuous learning, and should have experience or ambition to co-operate with industry. Candidates should hold or shortly receive a master's degree with good grades in a relevant field. The degree should preferably be completed before the start of the employment.

General qualification prerequisites are: \* Master's degree in mechanical engineering, materials science, computer science, statistics, or in a relevant field (completed by the time of applying for the study right) \* Excellent written and fluent verbal communication skills in English \* Finnish language is considered an advantage \* Applicants need to be able to work full-time and fulfil the formal eligibility and admission criteria for Aalto's Doctoral Programme in Engineering within the 6 month probation period as specified at [[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>

### What we offer

The starting salary of a doctoral researcher is about 2700 €/month (gross), with possible increases based on achievements. The annual workload is currently 1612 hours. The employment contract includes occupational health care, and Finland has a comprehensive social security system. The first contract will be made for 1 or 2 years, followed by a formal midterm evaluation. If the midterm evaluation is successful, an extension to the work contract will be made so that the total time for the doctoral studies is four years.

Aalto University's main campus is located in Espoo, approximately 15 minutes by metro from the center of Helsinki. Helsinki is a safe, clean, green capital city with a very high quality of life. Most Finns speak English fluently. More information about living and working in Finland can be found at [[url=https://www.aalto.fi/aalto-university/international-staff-information-package](https://www.aalto.fi/aalto-university/international-staff-information-package)]<https://www.aalto.fi/aalto-university/international-staff-information-package>.

### Ready to apply?

If you want to join our community, please submit your application through our recruitment system by 30.09.2024 at 23:59 Finnish time (UTC +3). The position will be filled as soon as a suitable candidate is identified.

To apply, please share the following application materials with us: \* Motivation letter with the applicant's contact information and an indication of the preferred starting date (max. 1 page) \* CV including details of all academic merits (including publications, if applicable), and contact information of two persons who may be contacted to provide a character reference (max. 3 pages) \* Summary of the applicant's master's thesis (max. 1 page) \* Copy of the applicant's master's degree certificate and a transcript of studies (with a clear explanation of the grading scale)

All materials should be submitted in English in a single pdf-file (compiled in the order specified above).

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Please note: Aalto University's employees and visitors 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.

Applications submitted by email will not be accepted. Aalto University reserves the right to leave the position open, extend the application period, reopen the application process, and consider candidates who have not submitted applications during the application period.

### Further information

For additional information, please contact Assistant Professor Jan Akmal (email: [firstname.lastname&#64;aalto.fi](mailto:firstname.lastname&#64;aalto.fi)). For questions related to the recruitment system, please contact [paula.thomsson-leva&#64;aalto.fi](mailto:paula.thomsson-leva&#64;aalto.fi).

Want to know more about us and your future colleagues? You can watch these videos:

[https://www.youtube.com/watch?v&#61;5k\\_og\\_6zUJQ](https://www.youtube.com/watch?v&#61;5k_og_6zUJQ)[https://www.youtube.com/watch?v&#61;5k\\_og\\_6zUJQ](https://www.youtube.com/watch?v&#61;5k_og_6zUJQ)

and <https://www.youtube.com/watch?v&#61;dUfEGVM-ZP8&feature&#61;youtu.be>

<https://www.youtube.com/watch?v&#61;dUfEGVM-ZP8&feature&#61;youtu.be>

Read more about working at Aalto: <https://www.aalto.fi/en/careers-at-aalto><https://www.aalto.fi/en/careers-at-aalto>

Take a virtual campus tour here: <https://virtualltour.aalto.fi/><https://virtualltour.aalto.fi/>

### 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: <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: <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)

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

[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.

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**Contact Information**

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

**Contact**

Finland