

Professor in Electronic Design for Machine Intelligence
KU Leuven

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Posted Apr. 24, 2024, set to expire Jul. 16, 2024

Job Title Professor in Electronic Design for Machine Intelligence
Department Faculty of Engineering Technology - Department of Electrical Engineering
<https://www.esat.kuleuven.be/stadius/>
Institution KU Leuven
Leuven, , Belgium

Date Posted Apr. 24, 2024

Application Deadline Jul. 16, 2024
Position Start Date Sep. 1, 2025

Job Categories Assistant Professor
Associate Professor
Professor

Academic Field(s) Electrical and/or Electronics

Job Website <https://www.kuleuven.be/personeel/jobsite/jobs/60308934?lang=en>

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Job Description

Professor in Electronic Design for Machine Intelligence

KU Leuven has a full-time academic vacancy in the area of electronic design for AI-based technology and computing paradigms at the Group T Leuven campus. We are looking for internationally orientated candidates with an excellent research record and with educational competencies within the field of electrical and electronics engineering, strongly focussed on synergetic collaboration with researchers and industry stakeholders in data science and mathematical engineering.

The successful applicant will be appointed in the ESAT-STADIUS Research Unit (STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics) (www.esat.kuleuven.be/stadius/) in the research Department of Electrical Engineering (ESAT) (www.esat.kuleuven.be) of KU Leuven (www.kuleuven.be), joining the research activities of 16 professors and around 100 PhD and postdoctoral researchers. Originating from a circuits and systems tradition, academic research in ESAT-STADIUS is now focused on mathematical engineering, where mathematical tools from numerical linear and multi-linear algebra, statistics and optimization are used for applications of dynamical systems and control, signal processing, data modeling and analytics. ESAT-STADIUS offers recognized expertise in diverse application fields such as industrial automation, audio and speech communication, digital communication, biomedical signal and data processing, and bio-informatics.

The new professor will also become a member of the educational Faculty of Engineering Technology that offers academic yet implementation-oriented engineering programs at seven campuses across Flanders. Main teaching duties will be situated at Group T Leuven Campus (<https://www.kuleuven.be/grouptcampus>), an international and entrepreneurial engineering campus in Leuven city centre. Each year more than 2200 students enrol at the campus in Bachelor and Master in Engineering Technology programs that are offered in both English and Dutch.

The successful applicant will join the eMedia Research Lab (<https://iiv.kuleuven.be/onderzoek/emedialab>), a cross-departmental research lab located at the Group T Leuven campus and consisting of researchers from ESAT-STADIUS and Computer Science. The eMedia Research Lab investigates, develops and implements novel techniques to enhance the human condition with embodied media. The systems investigated contain sensors that capture input from a human user or information from the environment, algorithms that analyze these data, and intelligent systems with actuators that generate meaningful output. Applications are found in the domain of healthcare, learning, arts and

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entertainment. The research topics related to the ESAT-STADIUS members of the eMedia Research Lab consist of embedded system design, audio engineering, signal processing, machine learning and biomedical data analysis.

The faculty, department, and campus can build upon solid research infrastructures, extensive international networks, connections with companies and non-profit organisations, a stable offer of talented PhD students, and a supportive work environment.

RESEARCH

Artificial intelligence (AI) is being adopted in society and industry at an unseen pace. Scientific endeavours in AI have predominantly emerged from the domain of data science and mathematical engineering. At the same time, the deep penetration of AI into present-day science and technology creates challenges and opportunities regarding electronic hardware design. New computing paradigms, such as neuromorphic computing and spiking neural networks, call for a radically new view on circuit design, whereas the integration of AI into low-power and wearable devices requires efficient and flexible hardware for edge computing.

- You will develop a research program at an international level in electronic circuit design for AI-based technology and/or novel AI-based computing paradigms, with a specific focus on reconfigurable hardware and embedded systems (e.g., FPGA technology). You set out a timely and original research agenda that synergetically adds a hardware dimension to the AI expertise that is present at the STADIUS and e-Media research groups, which currently includes machine learning, signal processing, neuromorphic computing, extended reality, and human-computer interaction.
- You engage in targeted scientific research, resulting in PhD's and publications that meet international standards and lead to broad international recognition. You are able to acquire competitive funding, both project-based government funding as well as industrial funding. The envisaged research program will also involve application-oriented research and research valorization activities in one or more of the application domains within the scope of the research division, i.e., healthcare, learning, arts and entertainment. As part of your research program, you will develop international partnerships, within the academic world as well as with industrial partners and stakeholders in the envisaged application domains.

TEACHING

- You provide high-quality education for both bachelor and master students in the field of electrical and electronics engineering, with a clear commitment to the quality of the programme as a whole.

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You have an outspoken interest in next-generation engineering education and are willing to evolve throughout your career towards substantial educational engagements, including also basic courses at undergraduate level. Teaching activities will include the development and coordination of coursework in the domain of electrical engineering, such as for example digital design concepts, complex digital design, and embedded systems.

- You contribute to the faculty's and the university's pedagogical project through the supervision of student projects (for example bachelor's and master's theses) and by acting as a promotor of PhD students.
- You develop your teaching in accordance with KU Leuven's views on activating and researched-based education and make use of the possibilities for educational professionalization offered by the faculty and the university.

SERVICE

Next to research and teaching, we value service to the scientific community (e.g., by carrying out editorial and peer review work and organising dissemination events), service to society (e.g., by participating in outreach events and societal debate), service to industry (e.g., through valorisation-oriented consultancy projects) and service to the university (e.g., by taking an active role and responsibility in internal committees).

PROFILE

- You have a PhD in Electrical or Electronics Engineering or an equivalent degree.
- You have a strong research track record in the discipline, evidenced by your publications or by your research experience in industry. You have the ambition to contribute to the valorisation of research in industry and in society. International experience is an important advantage.
- You have verifiable qualities related to academic education. Teaching experience is an advantage.
- You possess organisational skills and have a cooperative attitude. You also possess leadership competencies in a university or industry context.
- Proficiency in English is required.
- The official language used at KU Leuven is Dutch. If you do not speak Dutch (or do not speak it well) at the start of employment, KU Leuven will provide language training to enable you to take part in meetings.
- Before teaching courses in Dutch or English, you will be given the opportunity to learn Dutch, respectively English, to the required standard.

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OFFER

- We offer full-time employment in an intellectually challenging environment.
- KU Leuven is a research-intensive, internationally oriented university that carries out both fundamental and applied scientific research. Our university is highly focused on interdisciplinary and multidisciplinary research and strives for international excellence. In this regard, the university actively works together with research partners in Belgium and abroad and provides its students with an academic education that is based on high-quality scientific research.
- You will work at KU Leuven Campus Group T, in a historic, dynamic and lively city located in the heart of Belgium, within 30 minutes from Brussels, the capital of the European Union, and less than three hours from Paris, London and Amsterdam.
- Depending on your record and qualifications, you will be appointed to or tenured in one of the grades of the senior academic staff: assistant professor, associate professor, professor or full professor. In principle, junior researchers are appointed as assistant professor on the tenure track for a period of 5 years. At the end of this period and a positive evaluation, they are permanently appointed (or tenured) as associate professor.
- To facilitate scientific integration and research in the first phase, a research position equivalent to a PhD fellowship for 4 years is made available. If you have no other substantial funding available, you can also apply for a start-up grant of EUR 100.000, on the condition that you are appointed for at least 50%.
- KU Leuven is well set to welcome foreign professors and their family and provides practical support with regard to immigration & administration, housing, childcare, learning Dutch, partner career coaching, ...

INTERESTED?

For more information on the contents of the job, please contact:

- Prof. dr. ir. Georges Gielen, Department Chair of Department of Electrical Engineering (georges.gielen@kuleuven.be, +32 16 32 40 76)
- Prof. dr. ir. Wim Dewulf, Campus Chair of Group T Leuven campus (wim.dewulf@kuleuven.be, +32 16 37 28 81)

You can submit your application until July 16th, 2024, only through our online application system. If you have problems submitting your application online, please send an email to solliciteren@kuleuven.be.

Add to your application following documents in English (more information is available on the KU

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Leuven job site):

- your biosketch in which you indicate your added value as an academic for research, education and service to society of your past career and of your future activities (maximum 2 pages);
- a file on your five most important publications or realizations;
- an extensive cv including a full publication list and if applicable a portfolio of your architectural projects;
- your research plan with focus on the development of your research line and research team in relation with the colleague-researchers of the entity of employment (maximum 4 pages);
- your vision on academic education and its organization (maximum 2 pages);
- your contribution to society by outreach and public communication on science and technology, internal representation in boards and councils and service activities directly in relation to your developed expertise (maximum 1 page);
- your vision on leadership (maximum 1 page).

KU Leuven places great importance on research integrity and ethical conduct and will therefore ask you to sign an integrity statement upon appointment.

KU Leuven strives for an inclusive, respectful and socially safe environment. We embrace diversity among individuals and groups as an asset. Open dialogue and differences in perspective are essential for an ambitious research and educational environment. In our commitment to equal opportunity, we recognize the consequences of historical inequalities. We do not accept any form of discrimination based on, but not limited to, gender identity and expression, sexual orientation, age, ethnic or national background, skin colour, religious and philosophical diversity, neurodivergence, employment disability, health, or socioeconomic status. For questions about accessibility or support offered, we are happy to assist you at hr.diversiteit@kuleuven.be

Contact Information

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

Contact Professor Wim Dewulf, Campus Chair Group T
Leuven Campus
Faculty of Engineering Technology - Group T Leuven
Campus

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