Professor in Machine Learning in Computational Biology
KU Leuven

Job Title	Professor in Machine Learning in Computational Biology
Department	Science, Engineering & Technology Group
Institution	KU Leuven
	Leuven, , Belgium
Date Posted	Dec. 23, 2024
Application Deadline	Jan. 8, 2025
Position Start Date	Sep. 1, 2025
Job Categories	Professor
Academic Field(s)	Biology - Computational
Job Website	https://www.kuleuven.be/personeel/jobsite/jobs/60410148?lang=en
Apply Online Here	https://webwsp.aps.kuleuven.be/esap/public/ui5_ui5/sap/zh_erc_esol_go/index.html?sap-ui-language=EN&vacaturenummer=60410148&toepassing=HVY
Apply By Email	

Job Description

The Science, Engineering & Technology Group of KU Leuven and the VIB Center for AI & Computational Biology (VIB.AI) of the Flemish Institute for Biotechnology (VIB) are searching for a

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Principal Investigator to join their faculty (academic professor at KU Leuven, Group Leader at VIB). We are particularly interested in recruiting a faculty member who uses and develops artificial intelligence and machine learning methods and mechanistic mathematical models to address fundamental questions in biology.

The full-time position is a shared appointment between the VIB and KU Leuven. As a member of the academic staff of KU Leuven, you will be appointed as full-time Professor in the Faculty of Engineering Science within the Science, Engineering & Technology Group, on a joint appointment at the Departments of Computer Science (in the research unit Declarative Languages and Artificial Intelligence (DTAI)) and of Electrical Engineering (ESAT) (in the research unit STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics). Within VIB, you will be appointed as Group Leader in the VIB.AI Center for AI & Computational Biology. Besides the teaching and academic servicing tasks, the research and all other tasks related to this position are primarily localized and carried out at the VIB facilities in Leuven. Active presence at those facilities is required. This position comes with full salary and core funding (internationally competitive package) that is renewable for multiple additional 5-year periods, and access to state-of-the-art research and top-notch support core facilities, as well as support to attract talented PhD students and postdocs from across the world.

VIB Center for AI and Computational Biology
VIB (Flanders Institute for Biotechnology) is an entrepreneurial non-profit research institute, with a clear focus on ground-breaking strategic basic research in life sciences and operates in close partnership with the five universities in Flanders. VIB strives for a respectful and supportive working environment and a culture of belonging for diverse talents in the organization.

VIB.AI was established in 2023 as the 10th VIB center, with the core mission to study fundamental problems in biology by combining machine learning with in-depth knowledge of biological processes. We aim to work towards foundation models and integrative theories of biological systems, and towards innovative AI-driven biotech applications in synthetic biology, agro-tech, and personalized medicine. AI-driven research at VIB.AI starts from biological questions and challenges that are addressed using state-of-the-art and novel computational and AI strategies, through close interactions and iterations with biological experiments and research labs within VIB.AI and across VIB. Additionally, we are committed to fostering computational and AI research excellence across all VIB Centers, amplifying collaboration (12 co-associated GLs) and pushing the boundaries of innovation in all of VIB's research domains (plant biology, cancer biology, structural biology, medical biotechnology, neuroscience, immunology and microbiology).

KU Leuven Departments of Computers Science and of Electrical Engineering (ESAT)
The DTAI (Declarative Languages and Artificial Intelligence) research unit of the Department of

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Computer Science conducts fundamental research with high application potential on programming and modelling languages, artificial intelligence, and the intersection between both. Specific subjects include neurosymbolic AI, probabilistic programming, automating data science, integration of learning and reasoning, certification and verification of machine-learned models, constraint-based reasoning and optimization, logic-based modeling languages, functional programming languages, and applications of AI in sports analytics, manufacturing, engineering, health, and other domains. DTAI staff take up leading roles in the international research community and are actively involved in national and international networks. DTAI is also a founding member of Leuven.AI, the interdisciplinary KU Leuven Institute for Artificial Intelligence.

The STADIUS Center for Dynamical Systems, Signal Processing and Data Analytics is a research unit in the Department of Electrical Engineering (ESAT) of KU Leuven. Academic research in ESAT-STADIUS focuses 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. ESAT-STADIUS attracts competitive research funding through regional, national and European funding channels, such as the European Research Council ERC. In addition, ESAT-STADIUS has a large number of collaborative projects with industry, which has also resulted in the founding of several spin-off companies.

Research

As a VIB Group Leader and KU Leuven Professor, you are expected to (continue to) build your research program with your own independent research group, and to set up or consolidate a strong network with other researchers within VIB, the two Departments, KU Leuven and beyond. You strive for excellence in your research and thereby contribute to the scientific development of the new VIB.AI center.

We welcome applications across all domains of machine learning, artificial intelligence, and associated fields in mathematical modeling, addressing fundamental questions in biology. Examples of research topics include but are not limited to: development of new AI architectures for biology and hybrid models that combine deep learning with mechanistic models; foundation models of genome regulation using single-cell and spatial multi-omics data; AI-based modeling of protein structure and protein interaction networks; AI-based modeling of cell morphology and tissue function using imaging and computer vision; AI models of disease and digital twin applications. Biological applications are broad:

microorganisms, plant biology, biodiversity and ecology, neuroscience, cancer, and immunology. We also welcome applicants with applied projects, including synthetic biology, AI-driven experiments (experiment-in-the-loop), and AI for bio-engineering.

Teaching

- The candidate will take up teaching assignments within the abovementioned domain of expertise (in English or in Dutch) in the bachelor and master programs of the Faculty of Engineering Science.
- You ensure high-quality education, with a clear commitment to the quality of the program as a whole.
- You also contribute to the educational project of the university through the supervision of MSc theses and as a promoter of PhD students.

Service
You will provide scientific, societal and internal VIB and KU Leuven services that contribute to the broad dissemination of scientific results, the reputation of the entire VIB and the University, and/or the recruitment of students and researchers.

Profile

- You have a PhD or equivalent experience in machine learning or related methods for modeling qualitative and quantitative knowledge (PhD in Computer Science, Electrical Engineering, Artificial Intelligence, Mathematics, Physics, Computational Biology).
- Candidates will be considered at junior or more senior levels depending on your relevant experience in foundational machine learning research and/or applied machine learning in an academic and/or industrial setting (post-doctoral).
- You have excellent and proven machine learning and programming experience.
- You have published impactful research, and you have demonstrated creativity and originality and have addressed relevant problems in biology and computational research.
- You have demonstrated the ability to acquire competitive research funding.
- You have an interdisciplinary mindset and are keen on collaborating broadly in the VIB.AI center, the two Department and the University and beyond. You will build up an international network in the field.
- You are motivated to guide master students, PhDs and postdoctoral researchers, PhD interns,

and full-time scientists.
- You have obtained International working experience.
- You have a proven thorough knowledge of spoken and written English (preferably C1 level).
- The official administrative language used at KU Leuven is Dutch. If you do not speak Dutch (or do not speak it well enough) at the start of the employment, KU Leuven will provide language training to enable you to take part in meetings. Mastering Dutch at B2 level is required for tenured appointment at the University. Before teaching courses in Dutch or English, you will be given the opportunity to learn Dutch resp. English to the required C1 level.
- You must also be selected for a VIB Group Leader position at the VIB.AI center to be eligible for the KU Leuven professor position.

Offer

- A 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. The University and VIB have a high inter- and multidisciplinary focus and strive for international excellence.
- Substantial VIB.AI core research funding, that is renewable every 5 years.
- An attractive employment package including 100% of your salary and excellent health benefits.
- Access to a vibrant academic environment that encourages collaboration with top experts in biology, computational biology, engineering and computer science both at VIB and KU Leuven.
- Access to a highly talented pool of students in biology, computational biology, (electrical) engineering and computer science from the KU Leuven bachelor and master programs.
- New open-design state-of-the-art research space.
- Access to computing cluster infrastructure at the VIB Data Core and the Flemish Supercomputer Center.
- Access to excellent and staffed core facilities at the Center, at VIB, and at KU Leuven (including sequencing, proteomics, single-cell, microscopy, data core, and many more).
- The possibility to also perform wet lab activities in state-of-the art infrastructure.
- Broad administrative support, including helping recruiting technicians, PhD students and postdoc scientists for your group.
- Access to a dedicated business development team specialized in technology transfer and valorization.
- Professional leadership training.
- An internationally recognized workplace that values diversity and promotes an inclusive

environment.

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• 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, …
• You will work in Leuven, a historic, dynamic and lively city located in the heart of Belgium, within 20 minutes from Brussels, the capital of the European Union, and less than two hours from Paris, London and Amsterdam.
• Depending on your record and qualifications, you will be appointed in one of the grades of the senior academic staff: assistant professor, associate professor, professor or full professor. Junior academics will be appointed as tenure-track assistant professor ("tenure track docent") for a period of 5 years; after this period and with a positive evaluation, you obtain a tenured position as associate professor.

The Leuven Life Sciences eco-system and the city of Leuven
Leuven and the surrounding area of Northern Belgium (Flanders) represent one of the top research destinations in Europe. VIB.AI is part of the VIB Life Sciences Institute (with colleagues in cancer, bio-technology, immunology, plants, microbiology amongst others) and an extensive set of core facilities. KU Leuven is the largest university in Belgium and Europe's most innovative university and is home to the Leuven AI Institute and the Leuven University Hospital, one of the largest in Europe. Leuven is also home to imec, a world-renowned research center for nanoelectronics and digital technology.
Leuven is an attractive European university city with a rich history and a lively atmosphere. The area has a strong biotechnology sector with a wide variety of spin-offs and start-ups. This, together with the presence of the University of Leuven and the University Hospital, make Leuven particularly internationally-oriented and tech-minded, and a natural home for researchers and their families; the city was even awarded the title of European capital of innovation 2020 by the European Commission. English is very widely spoken in the city and surrounding area.

Leuven offers an affordable, high standard of living, has an international school, and ample daycare options. The public education system and public health care system in Flanders are world-class, easily accessible, and low-cost to end users. Public transport is excellent and widely available. Brussels, the capital of Europe, is only 20 mins away. Leuven is also only 14 minutes by train from Brussels Airport which has many daily direct flights to North America, Africa and Asia. There are also high-speed direct international rail connections to numerous cities including Paris, London, Frankfurt and Amsterdam.

Department of Electrical Engineering - STADIUS
Department of Computer Science - DTAI

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[VIB Center for AI and Computational Biology](#)

Interested?

For more information on the content of the position, please contact :
• Prof. dr. ir. Stein Aerts, Science Director at VIB.AI (stein.aerts@vib.be, +32 16 33 07 10)
• Prof. dr. ir. Stefan Vandewalle, Chair of the Department of Computer Science, KU Leuven (stefan.vandewalle@kuleuven.be, tel. +32 16 32 76 54)
• Prof. dr. ir. Vincent Rijmen, Chair of the Department of Electrical Engineering (ESAT), KU Leuven (Vincent.rijmen@kuleuven.be, tel. +32 16 32 10 68)

Start date: September 1, 2025

How to apply ?
You can submit your application only through our online application system. If you have problems submitting your application online, please contact solliciteren@kuleuven.be

As part of your application, we expect the following documents (in English):
· 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;
· your research plan with focus on the development of your research line and research team in relation to 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).

EEO/AA Policy

KU Leuven is committed to creating a diverse environment and is therefore an equal opportunity employer. It explicitly encourages candidates from groups that are currently underrepresented at the university to submit their applications.

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

Contact Information

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

Contact	Stefan Vandewalle
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	Leuven
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