AKATECH

PhD Researcher

Ecole/Institution/Société:
KU Leuven, **Belgium / Leuven**

Discipline:
Artificial Intelligence

Type d'emploi::
Full-time

Date de publication:
2021-02-27

Personne à contacter:
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PhD Researcher in Linguistics and Artificial Intelligence

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Job Description

(ref. BAP-2021-81)

Itec is a research group of KU Leuven and imec, Flanders' high-tech research and innovation hub for nanoelectronics and digital technologies. The interdisciplinary research concerns the design, development, and evaluation of personalized and adaptive digital solutions, with applications mostly in the domain of technology-enhanced education and training, but also in media and in health.

  Main research themes include: instructional design and effectiveness of technology-enhanced complex learning (eg collaborative problem-solving) based on theory and learning analytics data; the development of data-driven methods for effectiveness research (eg multilevel statistical modeling for meta-analysis) and for personalization (eg psychometric and machine learning techniques as well as language technology for intelligent tutoring systems).

In order to realize this, itec brings together researchers trained in the learning sciences, statistics, computer science, and applied linguistics, in a cooperative research lab on the Kulak campus in Kortrijk. The research group often collaborates with industry and societal partners.

Project

As a doctoral researcher, you will carry out strategic basic research at the intersection of linguistics and artificial intelligence, with possible applications in the domain of educational technology. Your research project will be situated within a larger research track that focuses on building intelligent systems that are able to learn to perceive, reason about, and interact with their environment using natural language. Your research project is also embedded in imec's research program on Smart Education, in which you will interact with researchers from itec, University of Ghent, VUB and imec, and its industrial and societal partners.

The precise topic of the PhD project will be decided upon in concertation with the candidate and taking into account their background, skills and interests, but possibilities include:

• For linguistics or computer science-oriented candidates:

  • Computational Construction Grammar: learning constructions from corpora of language use.

- Evolutionary Linguistics: computational models of the emergence and evolution of language in multi-agent populations.
- Integrating concept learning and reasoning.
- Topics in (hybrid) procedural semantics (composition of semantic networks, pragmatic inference).
- Other topics within the domains of computational construction grammar, evolutionary linguistics and procedural semantics.

• For mathematics-oriented candidates:

- Neuro-symbolic AI: bridging the gap between the symbolic and the numerical domain -implementing cognitive architectures in artificial neural networks or vector-symbolic architectures.
- Knowledge representation and reasoning in the educational technology domain (questions and answers, grading, corrective feedback,)

Envisioned applications of the research are situated in the domain of educational technology, including tutoring and question answering systems.

Profiles

- You have obtained a master's degree in artificial intelligence, linguistics, computer science, mathematics or a related domain. You have a solid academic track record.
- You are passionate about building intelligent systems that are capable of interacting with their environment through natural language.
- You have an explicit interest in educational technology research.
- You strive for excellence and have a scientific mindset.
- You are a loyal team player, who can work autonomously and deliver solid scientific work.
- You have strong communication skills in English. Proficiency in Dutch is considered an asset.

Offer

- You will be able to acquire the ropes of scientific research in a lively and stimulating environment, under the guidance of some of the best researchers in the field.
- You will be able to carry out research at the highest international level, at a prestigious research institute that aims for excellence in research with impact on society.
- You get the opportunity to work in collaboration with other leading research institutes both nationally and internationally, as well as with companies ranging from SMEs to multinationals.
- This position offers flexibility, the opportunity to work in a multicultural and multidisciplinary environment and to learn continuously.
- Your primary office is located at the KU Leuven campus Kulak in Kortrijk.
- We offer a full-time employment as a PhD researcher (scholarship) for 1 year, extensible upon a positive evaluation.
- In addition to a competitive pay, KU Leuven offers a number of benefits, such as the possibility of flexible working, hospitalisation insurance, eco-vouchers, reimbursement of commuting expenses by public transport, inexpensive meals, a KU Leuven bicycle,...

Interested?

For more information please contact Mr. Paul Van Eecke, phone: +32 56 24 64 68, e-mail: paul.vaneecke@kuleuven.be or Mr. Frederik Cornillie, tel .: +32 56 24 64 40, email: frederik.cornillie@kuleuven.be.

KU Leuven seeks to foster an environment where all talents can flourish, regardless of gender, age,

cultural background, nationality or impairments. If you have any questions relating to accessibility or support, please contact us at diversiteit.HR@kuleuven.be.

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