AKATECH

Research Associate (PhD Candidate) in Artificial Intelligence and Machine Learning

Ecole/Institution/Société:
Jacobs University, **Germany / Bremen**

Discipline:
Artificial Intelligence, Machine Learning

Type d'emploi::
Full-time; 38.5 hours/week; limited for 36 months

Date de publication:
2021-11-11

Personne à contacter:
If you wish to apply for this position, please specify that you saw it on AKATECH.tech

Jacobs University is a private, state-accredited, English-language research university in Bremen. We offer PreDegree, Bachelor's, Master's and PhD programs in the Focus Areas Health, Mobility and Diversity and are committed to the professional development of specialists and managers and to knowledge transfer. Guiding principles include the highest standards in research and teaching, interculturality, and cross-disciplinary collaboration. The aim is to optimally prepare talented individuals from all over the world for responsible tasks in a globalized working world. Currently, approximately 1,500 young people from over 110 nations live and learn on campus.

The department of Computer Science and Electrical Engineering invites interested candidates to apply for the position of

Research Associate (PhD Candidate) (m/f/d)
Artificial Intelligence (AI) and Machine Learning (ML) for mmWave/sub-THz Joint Communications, Sensing, Imaging, Tracking and Posture Identification.
(Full-time; 38.5 hours/week; limited for 36 months)
Job ID 21~58

Future 6G communications systems will operate on high frequency bands of 100s of MHz (mmWave/sub-THz) and rely strongly on AI/ML. This new paradigm will enable 6G systems to exploit radio signals beyond transmitted information, to extract also information on its surrounding environment, including the shape, location, and status of objects. This position is sponsored by a Tier-1 automotive and communication systems supplier and is intended to generate advanced scientific results suitable both to patenting and to be published as academic articles, on topics related to the indicated above. Examples of which are:

- **ML-based recognition and identification through the application of mmWave and sub-THz beamforming, waveform design and signal processing for imaging, multi-object and posture identification for V2X applications**. Exemplary Tools: Generative Adversarial Networks (GAN), conditional Deep Convolutional Networks (cDCN), hypergraph matching, Generalized Labeled Multi-Bernoulli Filters (GLMBF), and Long Short-Term Memory (LSTM) networks.
- **Dynamic Dilution of Precision for Path Prediction for Tracking in V2X scenarios**. Context: prediction of the trajectories of multiple objects in the context of Connected Autonomous Driving using typical mobility features and qualifiers, such as direction of bearing, likelihood of motion, etc., using the latest tools in AI/ML in combination with classical multi-target tracking schemes to build a dynamic probabilistic picture of the scenario

captured by the mmWave/sub-THz imaging system.

Your tasks:

- Conduct research on the aforementioned topics, producing both internal documentation towards patents as well as academic articles to be submitted to high-quality journals and conferences.
- Build simulation tools to demonstrate the efficacy of new methods and algorithms proposed.
- Integrate results with those of other members of the research team under the same project.

Your profile:

- M. Sc. degree in Electrical Engineering, with a focus on Wireless Communications and/or Signal Processing, with a track record of publications in research topics related to the description above.
- Expertise on both the algorithmic development and the application of AI/ML solutions, especially in the context of signal processing and wireless communications.
- Strong mathematical background, particularly in optimization theory, with proficiency in Matlab and Python. Daily familiarity with Latex.
- Familiarity with modern machine learning libraries such as TensorFlow, PyTorch, and JAX.
- Experience in image analysis and processing is a plus.
- Demonstrated ability to conduct scientific research and produce high-quality publications.
- Fluent English and the ability to collaborate with fellow researchers in a team.

We offer:

- A competitive salary and a 3-year position focused on advanced research
- A casual and intellectually rich environment for academic and technical development
- Opportunity to be part of a top-level research team and obtain a PhD degree based on the results of your research work
- Excellent career prospects and the chance to engage in international collaboration
- Free, extensive sports and health offers (currently under restrictions due to COVID 19)
- Green campus with recreation areas
- Jacobs University has extensive programs on sustainability, environmental sustainability, equal opportunities and high ethical values

If you enjoy a dynamic international working environment and like to work in a highly motivated and friendly team, you are exactly right with us! You can expect an open corporate culture with flat hierarchies as well as interesting and challenging tasks. During your induction, you will be optimally prepared for your area of responsibility.

Your application:

For further information regarding this position, please contact Prof. Dr. Giuseppe Abreu, via email (g.abreu@jacobs-university.de) or phone (+49 421 200 3172).

Please upload your relevant documents with details of your availability and salary expectations on our website. In order to do so, click here to go to our website.

The review of applications will begin immediately and will continue until the position is filled.

Jacobs University offers full equality of opportunity to all qualified applications and is an equal opportunity employer.

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