

Postdoctoral Researcher Positions For Computer Vision And Machine Learning

Ecole/Institution/Société:

University of Oulu, Finland / Oulu

Discipline:

Computer Vision

Type d'emploi::

Full-time

Date de publication:

2021-10-16

Personne à contacter:

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

JOB DESCRIPTION

The North changes the world - we at the University of Oulu work as part of the international science community to produce new scientific information and science-based solutions. We are committed to educate future pioneers to build a more sustainable, intelligent and humane world. Creating new, taking responsibility and succeeding together are values that build a strong foundation for all our actions.

We offer a working environment where individuals can cultivate their skills, do meaningful work, and develop professionally. Our university's several specialized research and service units enable extensive and diverse development and career opportunities for experts in various fields.

Infotech Oulu Institute is one of the four strategic focus institutes at the University of Oulu supporting high-quality research, coordinating multidisciplinary research activities and doctoral training.

Infotech's science-based expertise meets global challenges determined in the strategy of the University of Oulu (UO) in the focus area "Digitalization and smart society" exploring how digitalization can work for everyone.

The research topics include sensing and ubiquitous wireless sensor systems, wireless communication, and other novel services and systems. The research targets future information infrastructures and integrates aspects of technology adoption by complex human groups, communities, and societies.

We are now hiring a

Postdoctoral Researcher to work for the research project "Towards Secure and Reliable Deep Learning Systems against Adversarial Attacks" led by Academy Professor Guoying Zhao in the Center for Machine Vision and Signal Analysis Research Unit (CMVS) to work on 1) adversarial attacks and reliable deep learning, or 2) robust object classification and face recognition

The faculty, the research group and the research project

The positions are located at the Center for Machine Vision a signal analysis (CMVS), Faculty of Information Technology and Electrical Engineering (ITEE)

CMVS (<http://www.oulu.fi/cmvs>) provides an inspiring and international research environment. CMVS is renowned world-wide for its scientific breakthroughs in machine vision and signal analysis. Many of its results, including the Local Binary Pattern, face analysis and geometric camera calibration methodologies, are highly cited and have been adopted for different types of problems and applications around the world.

The unit is internationally attractive, with one visiting FiDiPro Professor and one Fellow, several visiting scholars and an extensive international collaboration network, enabling a large number of joint publications in leading forums. The main research interests of CMVS are in computer vision and machine learning, affective computing, multimodal image and signal analysis, low-energy computing, and applications in affective human-computer interaction, biometrics, augmented reality, and biomedicine.

In physiological signal analysis basic, applied and translational research in biomedical engineering is carried out to tackle key challenges of next generation personalized medicine and wellness solutions. In its field the Research Unit is globally highly ranked with research activities based on international collaborations.

The partners of CMVS include three institutes of Chinese Academy of Sciences (Computing Technology, Psychology, and Automation), National University of Singapore, University of Georgia (USA), Imperial College London, Czech Technical University (Prague), University of Maryland (USA), Idiap Research Institute (Switzerland), and EPFL (Switzerland).

In recent years, deep learning methods have been widely deployed in a range of vision related tasks such as object detection, segmentation and recognition. However, such methods can be vulnerable to adversarial attacks that subtle perturbations to inputs can result in incorrect decisions.

In this research project, Towards Secure and Reliable Deep Learning Systems against Adversarial Attacks, we attempt to explore the new generation of adversarial attacks, improve adversarial robustness of deep neural networks and establish reliable deep learning systems against adversarial attacks for secure digitalization and smart society.

This research is also expected to have a great practical and social impact due to the wide applicability of automatic systems to our daily life. This research includes both theoretical analysis and experimental validations using publicly available datasets. Mainstream computer vision and machine learning methods will also be investigated.

You would work in the field of computer vision and machine learning, carrying out the following tasks:

- study the courses related to the subject field;
- develop new algorithms and program to implement different methods, for solving problems in robust object classification and face recognition, and general neural network learning;
- analyze the experimental results, be able to find out the problems and adjust to new solutions;
- collaborate with other team members working in the same projects or same subject;
- write research papers and technical reports.

Qualification requirements

- must hold a Master`s degree in computer science or electrical engineering with previous experience on computer vision or a related area.
- good knowledge of spoken and written English is required and
- strong mathematical and programming skills with C / C ++ / Matlab / python are respected.
- publications on computer vision or a related area are considered as benefits.

Please also see the requirements of the University of Oulu Graduate School: http://www.oulu.fi/uniogs/requirements_for_admission.

Open position for a postdoctoral researcher

Successful applicants would work in the field of computer vision and machine learning, carrying out the following tasks:

- develop new methods for solving problems in adversarial attacks and reliable deep learning;
- analyze the experimental results, be able to find out the problems and adjust to new solutions;
- collaborate with other team members working in the same projects or same subject;
- write research papers and technical reports;
- help the supervisor guide junior researchers and manage projects.

Qualification requirements

- must hold a doctoral degree in computer science or electrical engineering, The doctoral degree must have been received no more than 10 years ago.
- would have previous experience and publications on computer vision or a related area.
- Strong publication record and mathematic background are expected.
- good knowledge of spoken and written English is required and
- strong mathematical and programming skills with C / C ++ / Matlab / python are respected.

What we offer

- We offer you a place in a highly talented research group, working to solve globally significant research problems.
- University's wide variety of support services are at your disposal, allowing you to focus on your studies and research / work.
- In addition to modern research facilities, we offer you personnel benefits such as free occupational healthcare, affordable sport services and endless opportunities to develop your skills and competences.
- Regular salary is paid 12 months per year, including paid leave and an additional holiday bonus in the summer.
- The successful candidate will receive also benefits provided by the Finnish government to residents, for example possibility to obtain access to the national healthcare system, tax benefits for employees with children and high-quality, affordable childcare services.

Salary

The salary of the selected doctoral student will be in accordance with the Finnish universities salary system for research and teaching personnel levels 2-4. In addition, a salary component based on personal work performance will be paid (maximum of 50% of the job-specific component). Starting gross salary will be approx. 2400-2500 € per month (before taxes).

The salary of the selected postdoctoral researcher will be in accordance with the Finnish universities salary system for research and teaching personnel level 5-6. In addition, a salary component based on personal work performance will be paid (maximum of 50% of the job-specific component). Starting gross salary will be approx. 3500-4000 € per month (before taxes).

How to apply

The application should be written in English and include the following:

- A motivation letter (max. 2 pages) summarizing applicant's professional experience and expertise and describing why an applicant is interested in about this position. Also, information on personal research interests, experience and career plans are valuable to provide here
- Curriculum vitae (max. 4 pages) in accordance with the guidelines of the Finnish Advisory Board on Research Integrity <http://www.tenk.fi/en/template-researchers-curriculum-vitae>
- List of publications based on the guidelines of the Academy of Finland: [https://www.aka.fi/en/research-funding/apply-for-funding/how-to-apply-for-funding/az-index-of-application-guidelines2 / list-of-publications / \[with ten most important indicated\]](https://www.aka.fi/en/research-funding/apply-for-funding/how-to-apply-for-funding/az-index-of-application-guidelines2/list-of-publications/[with%20ten%20most%20important%20indicated])
- A research plan, max. 2 pages
- Certificates / Diplomas: Scanned copy of the original doctoral degree certificate and transcript of records and, when necessary, official translations to Finnish or English
- Contact information of two senior / experienced researchers who may be asked to give a statement on the candidate

Only applications containing all relevant appendices and submitted through the online recruitment system will be considered. Top candidates will be invited to an on-site or remote interview. All applicants will be notified when the selection process is completed.

Further information

For further information, please contact

Academy Professor Guoying Zhao

Center for Machine Vision and Signal Analysis Research

Faculty of Information Technology and Electrical Engineering

Tel: +358 294 487564

Email: guoying.zhao@oulu.fi

About Oulu, Finland

inland is one of the most livable countries in the world, with a high quality of life, safety, excellent education system, and competitive economy. The Oulu region is home to over 200 000 people making it the largest urban center in the Nordics and one of the fastest growing regions in northern Finland.

Oulu is a combination of beautiful, northern nature, vivid cultural life and modern technology. Oulu is also known for its highly-educated people and friendly, easy-going atmosphere. Living in Oulu is easy - everything is only max. 20 minutes away! Find out more about Oulu: <https://www.oulu.fi/university/living-in-oulu>

JOB DETAILS

Title One Doctoral Student and One Postdoctoral Researcher Positions for Computer Vision and Machine Learning

Employer University of Oulu

Job location Pentti Kaiteran katu 1, 90570 Oulu

Job type s Postdoc, PhD

Fields Electrical Engineering, Computational Sciences, Machine Learning, Computer Vision

Personne à contacter:

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