

Vacancy: PhD position

Data-efficient Machine Learning for engineering

IDLab, Ghent University - imec, Belgium

IDLab is a core research group of imec, a world-leading research and innovation hub in nanoelectronics and digital technologies, with research activities at Ghent University. IDLab performs fundamental and applied research on data science and internet technology, and is, with over 300 researchers, one of the larger research groups at imec. Our major research areas are machine learning and data mining; semantic intelligence; multimedia processing; distributed intelligence for IoT; cloud and big data infrastructures; wireless and fixed networking; electromagnetics, RF and high-speed circuits and systems.

The activities of the PhD position are embedded in this stimulating environment and include **data-efficient machine learning** (or surrogate modeling), active learning, **Bayesian optimization**, etc. with applications in computer aided design (CAD; design optimization and the design and analysis of computer experiments), automatic machine learning (AutoML), , etc.

Job description

The goal of the PhD research is to design tools and techniques to automate key parts of the machine learning pipeline in order to build the models smarter, better and faster. In the proposed framework, we want to progressively automate the data science process, from data collection to training the machine learning models. This includes techniques for meta-learning (learning to learn), deep learning models, efficient data collection and labeling (active learning), etc.

PhD students will develop state-of-the-art algorithms to automate various Machine learning tasks in engineering, prioritizing the time-consuming and laborious steps in the AutoML flow, such as (data-efficient) modeling, and data collection. The proposed PhD research is defined within the context of several national and international research projects on automatic machine learning (AutoML).

Your profile

We are looking for highly creative and motivated PhD students with the following qualifications and skills.

- You have (or will obtain in the next months) a master degree in Computer Science, Mathematics, Informatics, Engineering or equivalent, with excellent ('honors'-level) grades.
- You have strong computer science skills (python, C++, etc.)
- You have a strong interest in machine learning, and are eager to advance the state-of-the-art.
- Experience with machine learning algorithmic approaches or frameworks (such as PyTorch, Tensorflow, GFlow, etc.) is considered a plus.
- You have excellent analytical skills to interpret the obtained research results.
- You are a team player and have strong communication skills.
- Your English is fluent, both speaking and writing.

Our offer

We offer the opportunity to do full-time research in an international (with over 17 nationalities at IDLab, part of imec and Ghent University) and friendly working environment, with a competitive salary at Ghent University. While grounded in fundamental academic research, as a PhD candidate you will also participate in collaborative research with industrial and/or academic partners in Flanders and/or on a wider geographic scale (e.g., EU H2020 projects), in the framework of new/ongoing projects. Furthermore, you will publish your research results at major international conferences and in journal papers, as part of meeting the requirements for your PhD. The PhD position is available starting winter 2020.

Interested?

Send your application by email or any questions concerning this vacancy to prof. Tom Dhaene (tom.dhaene@ugent.be) and dr. Ivo Couckuyt (ivo.couckuyt@ugent.be), indicating "*Job Application: Data-efficient learning*" in the subject. Applications should include (1) an academic/professional resume, (2) a personal motivation letter, and (3) transcripts of study results, and (4) at least two reference contacts. After a first screening, selected candidates will be invited for an interview (also possible via Skype) as a first contact in a multi-stage selection process.

- Application deadline: 31/12/2020 or until the vacancy is filled.
- Type of contract: Full-time
- Employment: Temporary (4 years), with yearly progress evaluation
- Earliest starting date: Winter 2020