The Faculty of Science and Leiden Institute for Advanced Computer Science (LIACS) is looking for a:

PHD candidate, Embedded Systems and Software (1.0 FTE)
Vacancy number: 17-336

Key Responsibilities

The PhD candidate will perform research and development activities within the EU Horizon 2020 project called ALOHA. This project aims at creating a software framework for the design, development, and implementation of runtime-adaptive and secure Deep Learning applications on heterogeneous low-energy embedded platforms. To this aim, the PhD candidate will contribute to the research and development of software tools, automating the:

- modeling and performance/energy/accuracy analysis of Deep Learning applications;
- optimized mapping and scheduling of the inference phase of Deep Learning applications onto heterogeneous embedded architectures.

During the research and development of the ALOHA software framework, several main features will be addressed, such as architecture-awareness (the features of the embedded architectures will be considered starting from the deep learning algorithm design), adaptivity, security, productivity, and extensibility.

Selection Criteria

The successful applicant should be a very motivated university graduate who is a top performer among his/her peers, has an excellent education and/or research track record proven by relevant experience, publications, etc. You are expected to conduct original competitive scientific research, publishing the results in top conferences and scientific journals, and participating in teaching duties.

Applicants are expected to:
- have a university degree (MSc), preferably in Computer Science or Computer (Electrical) Engineering;
- be excellent in spoken and written English;
- have excellent programming skills, e.g., in C/C++, Java, and/or Python;
- be familiar with Deep Learning techniques (Convolutional Neural Networks) and Embedded Systems and Software.

Research at our Faculty/Institute/Group

The Faculty of Science is a world-class faculty where staff and students work together in a dynamic international environment. It is a faculty where personal and academic development are top priorities. Our people are driven by curiosity to expand fundamental knowledge and to look beyond the borders of their own discipline; their aim is to benefit science, and to make a contribution to addressing the major societal challenges of the future. The faculty has grown strongly in recent years and now has more than 1,300 staff and almost 4,000 students. We are located at the heart of Leiden's Bio Science Park, one of

Europe's biggest science parks, where university and business life come together. For more information, see www.universiteitleiden.nl/en/science .

The Leiden Institute of Advanced Computer Science (LIACS) is the Computer Science Institute in the Faculty of Science of Leiden University. According to our recent research visitation, we are one of the foremost computer science departments of The Netherlands. We strive for excellence in a caring institute, where excellence, fun, and diversity go hand in hand. We offer a clear and inviting career path to young and talented scientists with the ambition to grow. For more information about LIACS, see https://liacs.leidenuniv.nl/ .

The PhD research will be carried out in the Leiden Embedded Research Center (LERC) at the Leiden Institute of Advanced Computer Science, Leiden University. LERC is an expert group and an internationally recognized leader in advanced research in Embedded Systems and Software. The group covers two related topics in this rapidly evolving domain: 1) Embedded Systems theory and applications; 2) Embedded Systems Design methods, techniques, CAD tools and tool flows. The research at LERC deals with abstract application models, platform/architecture models, and mapping models, at various levels of abstraction, for performance analysis, exploration and design, conceptually and practically, down to real platform/system implementations. The main mission of LERC is by its research to contribute in a highly innovative way to the system-level design of Embedded Systems, conceptually (theory), methodologically (design methods and tools), and structurally (platforms/architectures). Finally, LERC is advocating and applying state-of-the-art Software Engineering Techniques both in the way the group's projects are integrated, documented, and assessed, and in the way CAD software tools are written, tested and assessed. All this justifies the LERC belief that "The CAD software is the Publication" that makes significant impact in the research and industrial community. In this respect, one of the LERC research achievements is the DAEDALUS open source framework for automated design, programming, and implementation of multi-processor embedded systems, targeting streaming applications. It can be found at http://daedalus.liacs.nl/.

Terms and Conditions of Employment
Initially, the successful applicant will be appointed for one year. Then after a positive evaluation, the applicant will be appointed for a fixed-term period of three years. Salary range from €2,222 to €2,840 gross per month (salary scale P, in accordance with the Collective Labour Agreement for Dutch Universities).

Leiden University offers an attractive benefits package with additional holiday (8%) and end-of-year bonuses (8.3 %), training and career development. Our individual choices model gives you some freedom to assemble your own set of terms and conditions. Candidates from outside The Netherlands may be eligible for a substantial tax break. More at http://www.workingat.leiden.edu/.

All our PhD students are embedded in the Leiden University Graduate School of Science (https://www.universiteitleiden.nl/en/science/graduate-school-of-science). Our graduate school offers several PhD training courses at three levels: professional courses, skills training and personal effectiveness. In addition,

advanced courses to deepen scientific knowledge are offered by the research school.

Diversity

Leiden University is strongly committed to diversity within its community and especially welcomes applications from members of underrepresented groups.

Information
Additional information about the PhD position can be obtained from:

Dr. Todor Stefanov
Associate Professor
Phone: +31-(0)71-527-5776
E-mail: t.p.stefanov@liacs.leidenuniv.nl
Web-page: http://www.liacs.leidenuniv.nl/~stefanovtp/

Applications

To apply for this vacancy, please send **no later than 31 October 2017** an email to Dr. Todor Stefanov at t.p.stefanov@liacs.leidenuniv.nl. Please ensure that you attach the following additional documents quoting the vacancy number:

- A Curriculum Vitae (CV);
- A Letter of Motivation;
- A MSc diploma with transcripts (courses + grades);
- A (link to a draft of) Master's thesis, and other publications;
- Two to three references (who agreed to support the applicant).