Postdoc in AI Acceleration at the Edge through GPU and FPGA offloading

Position No.
2023-224-05225

At the Technical Faculty of IT and Design, Department of Electronic Systems, a position as postdoc in AI Acceleration at the Edge through GPU and FPGA offloading is open for appointment from July 1, 2023, or as soon as possible thereafter. The position is available for 24 months.

In the area of electronics engineering, Aalborg University is known worldwide for its high academic quality and the societal relevance of its research programmes. In electronics engineering, Aalborg University is known worldwide for its high academic quality and the societal relevance of its research programmes. The Department of Electronic Systems consists of more than 200 employees, of which about 40 % are international and about 90 are enrolled PhD students. The Department hosts 620 students. The Department's excellent research infrastructures and facilities accentuate its global position in teaching and research. The Department's research centres around communication, antennas, control systems, AI, sound, cyber security and robotics. The Department plays an active role in translating discoveries and results into practical applications with industrial partners and IPR. The Department provides teaching for several BSc and MSc programmes using a problem- and project-based learning model.

Job description

CLEVER proposes a series of innovations in the area of hardware accelerators (HW), design stack, and middleware software that revolutionize the ability of edge computing platforms to operate federatedly, leveraging sparse resources that are coordinated to create a powerful swarm pool of resources.

Massive Internet of Things (mIoT) or massive Machine Type Communications (mMTC), produce a large amount of data that needs to be processed and analyzed to be used. The deep edge computing paradigm moves computing services closer to the end user or the source of the data to reduce power consumption, reduce capacity requirements, and latency for mission critical applications.

Therefore, in the deep edge data are processed at the edge where the device is located, rather than sending the data back to a datacenter or cloud. Thus, the ability IoT devices to utilize compute power in an edge-cloud continuum is becoming increasingly valuable.

CLEVER is a large project composed of 20 partners from 6 different countries, and is highly industry-based, with companies like Nvidia, DELL, BMW, among others, and use cases related to Digital twin for in-factory optimization, smart agriculture, and augmented reality for shopping.

The research area of this position is within AI acceleration at the edge via GPU and FPGA. The candidate will work closely with use case partners from the project to identify the relevant AI tasks that can be offloaded to GPU-based edge servers.

The candidate we are looking for has knowledge and experience in:

- Understanding and being able to design a distributed infrastructure for heterogeneous systems
- Strong knowledge of the IoT-Edge-Cloud computing paradigm
- Strong competences in low-level programming languages like C/C++
- Basics of GPU/FPGA programming is an advantage
- Fundamentals of AI processing and its limits in lightweight devices

You may obtain further professional information from Associate Proffessor Sokol Kosta, e-mail: sok@es.aau.dk

Qualification requirements:

Appointment as Postdoc presupposes scientific qualifications at PhD–level or similar scientific qualifications. The research potential of each applicant will be emphasized in the overall assessment. Appointment as a Postdoc cannot exceed a period of four years in total at Aalborg University.

The application must contain the following:

- A motivated text wherein the reasons for applying, qualifications in relation to the position, and intentions and visions for the position are stated.
- A current curriculum vitae.
- Copies of relevant diplomas (Master of Science and PhD). On request, you can be asked for an official English translation.
- Scientific qualifications. A complete list of publications must be attached with an indication of the works the applicant wishes to be considered. You may attach up to 5 publications.
- Dissemination qualifications, including participation on committees or boards, participation in organisations and the like.
- Additional qualifications in relation to the position.
- References/recommendations.

The applications are only to be submitted online by using the "Apply online" button below.

Shortlisting will be applied. After the review of any objections regarding the assessment committee, the head of department, with assistance from the chair of the assessment committee, selects the candidates to be assessed. All applicants will be informed as to whether they will advance to assessment or not.

AAU wishes to reflect the diversity of society and welcomes applications from all qualified candidates regardless of personal background or belief.

For further information concerning the application procedure, please contact Sanne Vestergaard Hejlesen by mail est-st-hr@adm.aau.dk or phone (+45) 99403972. Information regarding guidelines, ministerial circular in force and procedures can be seen here

Workplace
Copenhagen

Agreement
Employment is in accordance with the Ministerial Order on the Appointment of Academic Staff at Universities (the Appointment Order) and the Ministry of Finance's current Job Structure for Academic Staff at Universities. Employment and salary are in accordance with the collective agreement for state-employed academics.

Deadline
14/05/2023

Apply online

Aalborg University (AAU) conducts teaching and research to the highest level in the fields of humanities, engineering, and natural, health, and social sciences.

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