

SCADS.AI PUBLIC COLLOQUIUM SESSION

Wed, Jan 18, 2023 | 15:15-16:45

@ ScaDS.AI Leipzig and online

Prof. Martin Bogdan (Leipzig University) invites

Prof. Lukáš Sekanina

Head of the Department of Computer Systems
Brno University of Technology, Czech Republic



Evolutionary Hardware-Aware Neural Architecture Search

To reduce human effort, neural architecture search (NAS) methods have been developed to automate the design process of deep neural networks (DNNs). Later, hardware-aware NAS methods were introduced to optimize DNN architecture (and weights) for a given hardware platform. The current trend is to co-optimize the hardware accelerator as a part of NAS and utilize the principles of approximate computing to optimize the resulting accelerator further. In this talk, we will survey the critical elements of NAS methods that – to various extents – consider hardware implementation of the resulting DNNs and employ an evolutionary algorithm as the main search engine. As most research in this area deals with NAS for image classification using convolutional neural networks (CNN), our case studies will be devoted to this application. We will present the EvoApproxNAS method capable of an automated design of CNN topology with an automated selection of suitable approximate multipliers for each convolutional layer to find the best tradeoff between the CNN's accuracy and energy.



ScaDS.AI Leipzig
Löhrs Carré
Humboldtstraße 25,
3. Obergeschoss
04105 Leipzig

PARTNER



FUNDED BY



Bundesministerium
für Bildung
und Forschung

FKZ: ScaDS.AI



SACHSEN Diese Maßnahme wird gefördert durch die Bundesregierung aufgrund eines Beschlusses des Deutschen Bundestages. Diese Maßnahme wird mitfinanziert durch Steuermittel auf der Grundlage des von den Abgeordneten des Sächsischen Landtags beschlossenen Haushaltes.

