Seminar Hora Informaticae   Institute of Computer Science, Prague

Tuesday, April 18, 2023, 14.00 – 15.30 (2 - 3:30 PM) CET

Meeting room 318, Address: Pod Vodárenskou věží 2, Prague 8

ZOOM: https://cesnet.zoom.us/j/95478234977?pwd=dXoyekFHbDJ0MkNrTjVVS3F2STZqUT09

Meeting ID: 954 7823 4977 ,   Passcode: 712564

Gabriela Kadlecová, Institute of Computer Science; Charles Univ., Fac Math & Phys:

Zero-cost proxies for neural network performance estimation.

In neural architecture search (NAS), the task is to find the best-performing architecture for a given deep learning task. The bottleneck of the search is the time-consuming training and evaluation of networks. The costs can be reduced by using performace predictors, which are models that map an architecture to its trained performance. Recently, zero-cost proxies have been proposed as very fast predictors-network performance is estimated using a score that is computed by passing a single minibatch of data to an untrained network. In this presentation, I will present the zero-cost proxies and their current role in NAS, as well as my ongoing work on zero-cost proxy ensembling.

References:

[1] Mohamed S. Abdelfattah, Abhinav Mehrotra, Lukasz Dudziak, & Nicholas D. Lane (2021). Zero-Cost Proxies for Lightweight NAS. In International Conference on Learning Representations (ICLR). https://openreview.net/pdf?id=0cmMMy8J5q

[2] Arjun Krishnakumar, Colin White, Arber Zela, Renbo Tu, Mahmoud Safari, & Frank Hutter (2022). NAS-Bench-Suite-Zero: Accelerating Research on Zero Cost Proxies. In Thirty-sixth Conference on Neural Information Processing Systems Datasets and Benchmarks Track. https://openreview.net/pdf?id=yWhuIjIjH8k

[3] C. White, M. Safari, R. Sukthanker, B. Ru, T. Elsken, A. Zela, Debadeepta Dey, & Frank Hutter. (2023). Neural Architecture Search: Insights from 1000 Papers. https://arxiv.org/abs/2301.08727

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Gabriela Kadlecová is a doctoral student of informatics at the Faculty of Mathematics and Physics, Charles University. She is currently working on her Ph.D. thesis, which focuses on evolutionary algorithms for automated neural architecture search. She also works in the area of graph neural networks.