Topi Korhonen

Curriculum Vitae

"Space is blue and birds fly through it." - Werner Heisenberg

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With background first in theoretical -and subsequently in computational physics I have a solid base for many data science related tasks both from theoretical and computational perspectives. For the past eight years I have been involved in various machine learning -/data science projects, ranging from model inference speed optimization to complex classification tasks in embedded resource constrained environments.

Current position

Data Scientist, *Two Hands Consulting AB*, Sweden. **2024–current**
As of autumn 2024 I have started to work as an independet consultant in the field of data science/machine learning. Currently my clients are in the fields of gesture recognition and internet traffic obfuscation.

Experience

Lead Data Scientist, *Doublepoint*, Helsinki. **2022–2024**
Leading a team of five people tasked to develop and implement real time inference machine learning models on (custom made) embedded devices for gesture recognition. We work in close collaboration with the devices and data collection teams who provide the hardware and data.

Data Scientist, *Doublepoint*, Helsinki. **2021–2022**
Development and implementation (from data collection to deployment on smartwatches) of machine learning models for gesture recognition on wearable devices.

Project researcher/Research Assistant, *Karlstad University, Department of Computer Sciences*, Karlstad. **2017–2021**
Development and implementation of novel machine learning based approach for network traffic classification and study of explainable machine learning.

Research papers in machine learning. **2018–**

I J. Garcia and T. Korhonen, *Exploring Ranked Local Selectors for Stable Exp lanations of ML Models* IJCNN, (2021), doi: https://doi.org/10.1109/IDSTA53674.2021.9660809

II J. Garcia and T. Korhonen, *Efficient Distribution-Derived Features for High-Speed Encrypted Flow Classification* ACM SIG-COMM 2018, 21-27 (2018), doi: https://doi.org/10.1145/3229543.3229548

III J. Garcia and T. Korhonen, *Towards Video Flow Classification at a Million Encrypted Flows Per Second* AINA, 358-365 (2018), doi: https://doi.org/10.1109/AINA.2018.00061

IV J. Garcia and T. Korhonen, *On Runtime and Classification Performance of the Discretize-Optimize (DISCO) Classification Approach* WAIN, (2018) doi: https://doi.org/10.1145/3308897.3308965

V J. Garcia and T. Korhonen, *DIOPT: Extremely Fast Classification Using Lookups and Optimal Feature Discretization* IJCNN, (2020), doi: https://doi.org/10.1109/IJCNN48605.2020.9207037

Research papers in applied mathematics. **2021**

I Computational study of the effect of hypoxia on cancer response to radiation treatment, Accepted 2021. doi: https://doi.org/10.1101/2020.10.21.348474

Education

Doctor of Philosophy, Physics, *University of Jyväskylä*, Jyväskylä, *Modeling the mechanical behavior of carbon nano structures*. **2012–2016**

Master of Philosophy, Theoretical physics, *University of Jyväskylä*, Jyväskylä, *Many-particle approach to lead-molecule interactions and to the image-charge effect*. **2007–2012**

Data-analytics related studies, *Coursera, University of Michigan*, Applied Data Science with Python. **2017**

Computer skills

Advanced: Linux, Python (`pip`, `conda`, `numpy`, `pandas`, `scipy`, `matplotlib`, `pyplot`, `seaborn`, `sklearn`, `tensorflow`, `pytorch`), LaTeX, vim, git

Good: `bash`, C/C++, hydra, mlflow

My personal git page with hobby projects.