

LASSE F. WOLFF ANTHONY

Computer scientist specializing in machine learning ◊ Danish national

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EDUCATION

ETH Zürich

MSc ETH in Computer Science

Sep 2020 – Mar 2023

Zürich, Switzerland

Major in Machine Intelligence and minor in Programming Languages and Software Engineering.

Thesis: “Exploring Data Collection Dynamics Through Data Valuation.”

GPA: 5.3/6.0

University of Copenhagen

BSc in Computer Science

Sep 2017 – Jun 2020

Copenhagen, Denmark

Specialization in Data Science with coursework focused on machine learning.

Thesis: “The Carbon Footprint of Training Deep Learning Models.”

GPA: 11.8/12.0

University of California, Merced

UCEAP Reciprocal Program

Aug 2019 – Dec 2019

Merced, California, USA

Exchange study part of my BSc CS at UCPH with coursework focused on machine learning.

GPA: 4.0/4.0

EXPERIENCE

University of Copenhagen

Teaching Assistant

Feb 2020 – Jul 2020

Copenhagen, Denmark

- TA for the course Data Science (2019/2020): Databases, introduction to machine learning and data science with an emphasis on natural language processing and data pipelines.
- Led lab sessions and provided guidance to students on coursework and projects.

Nykredit

Software Developer

Oct 2018 – Jan 2020

Copenhagen, Denmark

- Worked as a software developer in an agile C# development team, utilizing Scrum and Kanban methodologies at one of Denmark’s leading financial institutions.
- Developed and maintained financial software for mortgage loans using .NET Framework, significantly reducing time spent on processing loan application for financial advisors.
- Ensured compliance across all of Nykredit IT with the data protection and privacy law GDPR by developing and maintaining a web-based ASP.NET tool.
- Implemented a continuous deployment pipeline using a Jenkins CI server integrated with BitBucket, fully automating integration testing and deployment.

PUBLICATIONS

- [1] L. F. W. Anthony, B. Kanding, and R. Selvan, “Carbontracker: Tracking and predicting the carbon footprint of training deep learning models,” in *ICML Workshop on Challenges in Deploying and monitoring Machine Learning Systems*, Jul. 2020.
- [2] R. Selvan, N. Bhagwat, L. F. W. Anthony, B. Kanding, and E. B. Dam, “Carbon footprint of selecting and training deep learning models for medical image analysis,” in *International Conference on Medical Image Computing and Computer-Assisted Intervention – MICCAI 2022*, 2022.

HIGHLIGHTED PROJECTS

Carbontracker

github.com/lfwa/carbontracker

Open-source tool for tracking and predicting the energy consumption and carbon emissions of training deep learning models in Python. The tool is freely distributed under the MIT License. Corresponding publication [1]. It has been downloaded >60k times on the Python Package Index (PyPI) as of writing.

Datadynamics

github.com/lfwa/datadynamics

Open-source library and environment for simulating data collection dynamics in multi-agent settings, primarily targeting the exploration of data valuation approaches. The library is freely distributed under the BSD 3-Clause License.

Reinforced Graph Neural Networks for Collaborative Filtering

github.com/lfwa/reinforced-gnn

Introduced a novel architecture to generate predictive compatibility scores for never-before-seen content in recommendation systems. The architecture combines the strength of graph-extracted embeddings in a graph neural network with the generalization power of a deep feed-forward network and adds “reinforcements” providing additional information to the network.

Static Taint Analysis For Ethereum Contracts

github.com/lfwa/vulnerable-ethereum-contracts

Designed and implemented a static taint analyzer in Datalog for Ethereum smart contracts. The analyzer detects vulnerable contracts that may be deleted from the blockchain and have all remaining cryptocurrency transferred to an untrusted address.

Supporting Alternative SMT Solvers in Viper

github.com/viperproject

Added support for multiple SMT solvers, such as cvc5, in the symbolic-execution based automated verification backend written in Scala for the program verification tool chain and infrastructure, Viper.

RELEVANT COURSEWORK

Machine Learning & Big Data

Advanced Machine Learning
Causal Representation Learning
Natural Language Processing
Probabilistic AI
Reliable & Trustworthy AI
Computational Intelligence
Big Data

Mathematics

Statistics & Probability Theory
Discrete Mathematics
Linear Algebra
Modelling & Analysis of Data
Algorithms & Data Structures
Randomized Algorithms

Software Engineering

Program Verification
Program Analysis for System
↳ Security and Reliability
Concepts of Object-Oriented
↳ Programming
Computer & Network Security

SKILLS

Programming Languages

Python, C#, SQL, Rust, Scala, F#, Java, C, Datalog

Databases

PostgreSQL, Oracle

Frameworks and Tools

PyTorch, TensorFlow, Gym(nasium), PettingZoo, NumPy, pandas, scikit-learn, Matplotlib, Git, Spark, Hadoop, Neo4j