LASSE F. WOLFF ANTHONY

Computer scientist specializing in machine learning ◇ Danish national
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EDUCATION

ETH Zürich Sep 2020 – Mar 2023 (expected)
MSc ETH in Computer Science *Zürich, Switzerland*
Major in Machine Intelligence and minor in Programming Languages and Software Engineering.
Thesis: "Data Marketplaces and Strategies."
GPA: 5.3/6.0

University of Copenhagen Sep 2017 – Jun 2020
BSc in Computer Science *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 Aug 2019 – Dec 2019
UCEAP Reciprocal Program *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 Feb 2020 – Jul 2020
Teaching Assistant *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 Oct 2018 – Jan 2020
Software Developer *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 in .NET Framework, resulting in a significant reduction of time spent by in-house financial advisors to process loan applications.
- 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.
- Lead the effort to set up a continuous deployment pipeline using a Jenkins CI server integrated with BitBucket, eliminating manual work associated with 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 released under the MIT license for tracking and predicting the energy consumption and carbon emissions of training deep learning models in Python. Corresponding publication [1]. It has been downloaded >55k times on the Python Package Index (PyPI) as of writing.

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	**Mathematics**	**Software Engineering**
Advanced Machine Learning	Statistics & Probability Theory	Program Verification
Causal Representation Learning	Discrete Mathematics	Program Analysis for System
Natural Language Processing	Linear Algebra	↳ Security and Reliability
Probabilistic AI	Modelling & Analysis of Data	Concepts of Object-Oriented
Reliable & Trustworthy AI	Algorithms & Data Structures	↳ Programming
Computational Intelligence	Randomized Algorithms	Computer & Network Security
Big Data		

SKILLS

Programming Languages	Python, C#, SQL, Rust, Scala, F#, Java, C, Datalog
Databases	PostgreSQL, Oracle
Frameworks and Tools	PyTorch, TensorFlow, Gym(nasium), scikit-learn, NumPy, pandas, Matplotlib, Git, Spark, Hadoop, Neo4j