Theo **Olausson**

Informatics Student · Aspiring Researcher

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Summary

Master of Informatics student at the University of Edinburgh with an exceptional academic record (**4.0 GPA**) and experience in research. Interested in applying mathematical techniques to problems in computer science, ranging from applications in **machine learning** to the design of **parallel computer architectures**.

Work Experience

Arm Research

Cambridge, UK

Research Intern, Memory & Systems Architecture — *Jun. 2019 - Aug. 2019*

- Designed, analysed and implemented a method for verifying the memory persistency model of Arm's ARMv8 architecture on real hardware
- Used this method to construct a suite of Litmus tests targeting different aspects of the memory model
- Discussed my progress in weekly team-wide meetings, and regularly met with senior members of staff to discuss complex aspects of my research
- Gave a 60-minute presentation on the results of my research, open to all research staff at Arm

Institute for Computing Systems Architecture, Univ. of Edinburgh

Edinburgh, UK

Research Intern/Assistant — *May 2018 - Aug. 2018*

- Worked on extending ProtoGen, a tool for automatically generating directory cache coherence protocols from atomic specifications (as seen at the International Symposium on Computer Architecture, Los Angeles, 2018)
- Researched algorithmic approaches to the localization of bugs in coherence protocols, implementing and analysing several potential methods
- Extended the DSL of ProtoGen and wrote a parser for the output of its Murphi verification backend
- Currently continuing this work as my undergraduate dissertation

Education

University of Edinburgh

Edinburgh, UK

Master of Informatics (Hons), Expected First Class — *Sep. 2016 - CURRENTLY*

- 5-year integrated Masters programme, starting off following the same path as the BSc in Artificial Intelligence & Computer Science but then diverging into study at the Masters level
- Grade average: A2 (UK), 4.0 (US)
- Course highlights from the Fall 2019 semester:
  - Machine Learning Practical: Used PyTorch and Python to build and analyse Deep Learning systems based on recent advances in the literature. For example, compared the effects of adding Batch Normalization or the DenseNet topology to a 38-layer CNN by conducting experiments evaluating the model's performance on the CIFAR-100 image recognition dataset.
  - Machine Learning & Patter Recognition: Developed a deep understanding of the mathematics underlying modern approaches to machine learning. I especially enjoyed working with Bayesian regression and Gaussian Processes.

Skills

Programming Languages Python C/C++ Kotlin Java OCaml Haskell

Tools/Frameworks Git VCS Linux PyTorch sk-learn Murphi (model checking) JUnit/Espresso testing

Theory Deep Learning Neural Networks Computer Vision Memory Models Computer Architecture Algorithms/Data Structures

Languages English (fluent) Swedish (Fluent)

Awards

2019 **Informatic BDEs prize for Entrepreneurship**, System Design Project 2018/19 (Univ. of Edinburgh) — *Edinburgh, UK*

2019 **Sky Prize for Teamwork**, System Design Project 2018/19 (Univ. of Edinburgh) — *Edinburgh, UK*

2017 **€2500 Grant for Pursuing Further Education Abroad**, Hempel Foundation — *Copenhagen, DK*

2016 **€3000 Grant for Pursuing Further Education Abroad**, Hempel Foundation — *Copenhagen, DK*

2016 **£200 Award for Top Academic Performance**, Ehrensvärdska High School — *Karlskrona, SE*