Sarek Høverstad Skotåm

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Education

University of Oslo GPA: 5.0/5.0
MSc in Informatics. ***Took 30 credits extra (one semester is 30 credits).*** *Aug. 2020 – Present*

University of Oslo GPA: 4.5/5.0
BSc in Informatics. ***Did the BSc in two years + took 40 credits extra.*** *Aug. 2018 – May 2020*

Projects

Formal verification of Rust code | *Rust, Creusot* Aug 2021 – Present

- As a part of my master's thesis, I developed a series of SAT solvers in **Rust**, which I then verified with **Creusot**.
- The **most extensive use of deductive verification tools for verification of Rust code to date**[1].
- Implemented and verified the **DPLL** algorithm, as well as the **CDCL** algorithm with **clause analysis, clause learning, unit propagation** with **two watched literals**, **backtracking to asserting level**, the **VMTF** decision heuristic, **search restart**, **clause deletion** and **phase saving**.
- Currently **the fastest deductively verified SAT solver**. Held a talk about the project on RustVerify 2022, with good feedback.

Experience

Consultant / Developer Jun. 2021 – Aug 2021
Systek AS (consulting firm) / Elvia AS (largest power grid operator in Norway) *Oslo, Norway*

- Investigated the potential of using technology to aid in the detection of rot in power masts. We developed an application using **Python**, **JavaScript**, **React**, **Node.js**, **Express.js**, **Google Cloud**, **Docker**, **Bash**, **uWebSockets.js** and **TensorFlow/Keras** which did collection of data with live feedback from an ML-model.
- Developed a 24 page report and held multiple talks internally about our findings and our developed solution.

Teaching Assistant Aug 2019 – Jun 2021
University of Oslo *Oslo, Norway*

- TA in **Operating Systems** spring 2021, **Functional Programming** autumn 2020, **Logical Methods** spring 2020, and **Introduction to Computer Technology** autumn 2019.
- Held weekly seminars for up to 40 students and corrected assignments + corrected exams autumn 2020.

Course developer for the course Functional Programming Jun. 2020 – Aug 2020
University of Oslo *Oslo, Norway*

- Worked with two other students on reworking the assignments and making new course material.

Prizes, misc

- Won the Department of Informatics' (DOI) prize for **outstanding teaching in multiple subjects over multiple semesters**, as, to the best of my knowledge, the least experienced to ever do so.
- The **fastest implementation ever** for home exam 1, and the **fastest since 2015** for home exam 2 in Programming Heterogeneous Multi-Core Architectures, which is commonly regarded as **the most difficult course** at the DOI.
- Member of the board of the student organization Mathematics, Algorithms and Programming for Students (MAPS) 2020/2021, then leader 2021/2022. During my leadership, MAPS went from being nearly extinct to having the issue of **the largest classrooms available being too small for the amount of attendees**.
- Rank 1 Oslo / Rank 4 Norway on the competitive coding website Kattis.

Technical Skills

Proficient with: Rust, Python, C, Bash Git, Vim, VS Code, Linux
Familiar with: CUDA, ARM Neon, Kotlin, Java, C++, Docker, Google Cloud Platform, JavaSript, React, HTML, CSS, Node.js, Flask, Express, uWebSockets.js, Scheme, x86 Assembly, PostgreSQL

[1] It should be larger than what is publicly available by a fairly large margin. There might exist non-public projects which are larger.