Alexander Schaap

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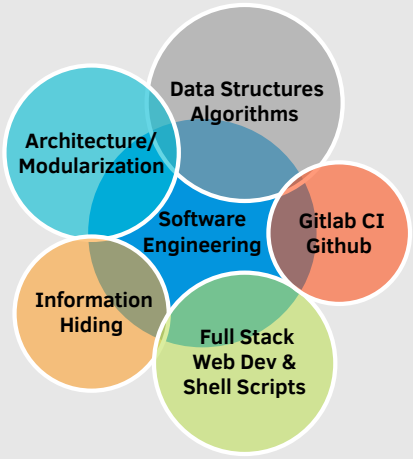
aschaap

Skills



Programming

Knowledge of ⟶ *Skilled in*

OCaml • Linux • LaTeX

Java • Lua • Git

Haskell • C++ • JS

Projects

From Trash to Treasure Diverting waste by collecting, sanitizing, and refurbishing e-waste for children in need within the community, students, and acquaintances.

- Climate Change and Health—Innovation Award

Homelab OPNsense router, network boot server, and file server (ZFS) running NextCloud and BorgBackup.

Dana Website in Ruby and JS to connect restaurants for donating excess food and people in need.

- 3rd prize at DeltaHacks II
- W Booth prize (entrepreneurial)

Education

2017 - Now **Ph.D., Software Engineering** McMaster University, Canada
Generated program families using multi-stage programming and generics in MetaOCaml. Variabilities include programming paradigm and sorting algorithms. Focused on deriving abstract interfaces to provide information hiding w.r.t. paradigm and other design choices.

2014 - 2016 **M.A.Sc., Software Engineering** McMaster University, Canada
Researched generating multiple module decompositions in MetaOCaml, Haskell and Java. Begun investigating paradigm-polymorphic program family generation.

2009 - 2013 **B.Sc., Computer Science** University of Twente, the Netherlands
Java, Haskell, SQL, networking, OS; thesis categorized Tor exit-nodes.

Experience

Mar 2014 - Now **Grad. Research Asst./Research Eng.** McMaster CERC in Hybrid Powertrain
Developing hybrid powertrains for Fiat Chrysler Automobiles (FCA):
- Reverse-engineer and analyze several large FCA Simulink models
- Lead the creation of Simulink model documentation automation
- Port Simulink and C code to new hardware and hypervisor
- Lead the migration of legacy automotive control software (Simulink and C) towards compliance with the AUTOSAR 4.2.2 standard
- Supervise undergraduate students (2+ years)

Jan 2018 - Apr 2018 **Graduate Teaching Assistant (CS 1XA3)** McMaster University, Canada
An introductory course covering core concepts in functional programming and practical skills programming in Bash, Haskell and Elm.

Feb 2013 - Now **IT Manager (part-time)** Soltree Sustainable Solutions
Design, develop and maintain website, network, and Linux systems.

Publications

V. Pantelic, A. Schaap, A. Wassyng, V. Bandur, and M. Lawford. "Something Is Rotten in the State of Documenting Simulink Models". In: *Proc. 7th International Conference on Model-Driven Engineering and Software Development*. 2019.

A. Schaap, G. Marks, V. Pantelic, M. Lawford, G. Selim, A. Wassyng, and L. Patcas. "Documenting Simulink Designs of Embedded Systems". In: *Proc. 21st ACM/IEEE Int. Conf. on Model Driven Engineering Languages and Systems: Companion Proceedings*. 2018.

M. Bialy, V. Pantelic, J. Jaskolka, A. Schaap, L. Patcas, M. Lawford, and A. Wassyng. "Software Engineering for Model-Based Development by Domain Experts". In: *Handbook of System Safety and Security*. Elsevier, 2016, pp. 39–64.

A. Schaap. "Towards Generating Software Modularizations". Master's Thesis. 2016.

A. Schaap. "Characterization of Tor Exit-Nodes". In: *Proc. 18th Twente Student Conf.* 2013.

Awards

2017,'18,'20 **Ontario Graduate Scholarship** ($15,000 each year)

Service & Outreach

Aug 2019 - Dec 2019 **Collaborator on 3S03 E-Waste Reuse Project** McMaster University
Provided technical expertise to the "From Trash to Treasure" course project by McMaster's Academic Sustainability Programs Office.

2016 - 2017 **Life in Computing & Software (LiCS)** McMaster University
Co-founder & VP Tech of the first graduate student club to improve student life in the CAS department.