Alexander Schaap

Ph.D. Student

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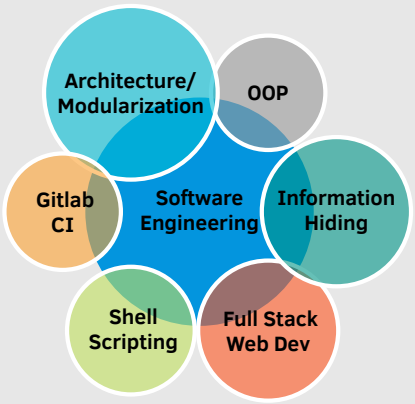
aschaap

Skills



Programming

Knowledge of ⟶ *Skilled in*

OCaml • Linux • LaTeX

Java • Lua • Git

Haskell • C++ • JS

Projects

Selfhosting OPNsense router, netboot server, and Debian home server on ZFS for backups via BorgBackup and task management via KanBoard.

Dana Website in Ruby and JS to connect restaurants and charities for donating excess food (in return for advertising), and consumers for deals in said restaurants

- 3rd prize at DeltaHacks II
- W Booth Prize for most innovative or entrepreneurial idea

Rehistoric Simple GUI revision control for the uninitiated, written in C++ and Qt.

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-agnostic program family generation.

2009 - 2013 **B.Sc., Computer Science** University of Twente, the Netherlands
Thesis paper investigated Tor exit-nodes. Courses included Java & Haskell, SQL databases, networking, etc. Minored in Chinese language & culture.

Experience

Jan 2017 - Now **Graduate Research Assistant** McMaster CERC in Hybrid Powertrain
Resumed position in collaboration between McMaster University and Fiat Chrysler Automobiles (FCA):
- Researching and partaking in modification of automotive control software (Simulink) to domain-controller hardware architecture.
- Researched migration of legacy automotive control software towards compliance with the AUTomotive Open Software Architecture (AUTOSAR) standard, in part via dSPACE SystemDesk.
  - Included largely independent supervision of multiple undergraduate students for a combined 12 months.

Jan 2018 - Apr 2018 **Graduate Teaching Assistant** McMaster University, Canada
First-year Bash, Haskell and Elm course.

Oct 2016 - Dec 2016 **Research Engineer** McMaster CERC in Hybrid Powertrain
Finalized documentation automation effort from previous position.

Mar 2014 - Aug 2016 **Graduate Research Assistant** McMaster CERC in Hybrid Powertrain
Part of a large multidisciplinary project between McMaster University and Fiat Chrysler Automobiles (FCA) to develop hybrid powertrains:
- Worked with domain experts to reverse-engineer, document and analyze several large FCA Simulink models.
- Directed and took part in the creation of a process and accompanying templates for automated documentation of Simulink models.
  - Included the supervision of an undergraduate student for 16 months with minimal intervention of supervisors.

Feb 2013 - Dec 2013 **IT Manager (part-time)** Soltree Sustainable Solutions
Primarily:
- Joomla website design (HTML & CSS), SEO, and maintenance.
- Maintaining SOHO computer network and communications.
- Linux system maintenance and upgrades, tech support.

Awards

2017, 2018 **Ontario Graduate Scholarship (OGS)** McMaster University, Canada
Awarded $15,000 both years.

Service & Outreach

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

Publications

A. Schaap, G. Marks, V. Pantelic, M. Lawford, G. Selim, A. Wassyng, and L. Patcas. “Documenting Simulink Designs of Embedded Systems”. In: *Proceedings of the 21st ACM/IEEE International Conference on Model Driven Engineering Languages and Systems: Companion Proceedings*. MODELS ’18. Copenhagen, Denmark, 2018, pp. 47–51.

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.