

Alexander Schaap

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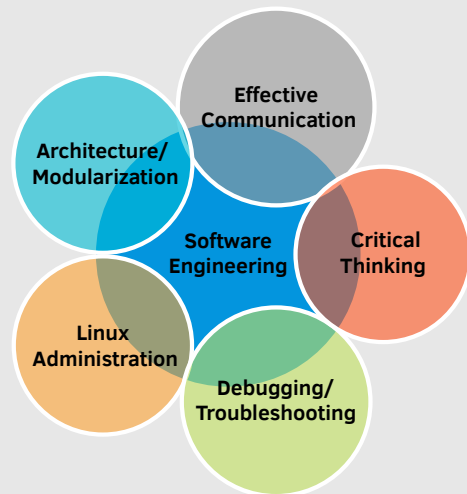
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Skills



Programming

OCaml • Java • \LaTeX

Bash • Lua • Git

Haskell • C & C++ • JS

Projects

From Trash to Treasure Identified e-waste reuse opportunity, and consulted on pilot for refurbishing PCs for children in need within the community and students; diverted over 1000 kg and donated 70 systems.

- Climate Change and Health — Innovation Award (\$5000)

Homelab Maintaining personal OPNsense router, network boot server, and Nextcloud file server.

Hackathon Project Group ideated and created website in Ruby and JS to connect restaurants for donating excess food and people in need.

- 3rd prize at DeltaHacks II (out of over 350 participants)
- W Booth prize (entrepreneurial)

Experience

- Aug 2021 - Feb 2024 **Software Engineer** Menlob Inc.
Developed large microservice-based system in Linux cloud for transportation management software.
- Implemented, refined, deployed and documented back-end features/APIs (C#, Docker, Kubernetes, Git, Bash)
 - Created and supported two comprehensive development workflows (Bash, Python, Minikube, Helm Charts, GitLab)
 - Led and supported the upgrade from .NET 5 to .NET 6
 - Onboarded, trained and mentored new hires to maximize velocity
- Mar 2014 - Aug 2021 **Grad. Research Asst./Research Eng.** McMaster CERC in Hybrid Powertrain
Developed hybrid powertrains for Fiat Chrysler Automobiles (FCA):
- Reverse-engineered several large FCA Simulink models
 - Led the creation of Simulink model documentation automation – Ready-to-use tool on MATLAB Central
 - Ported Simulink and C code to new hardware and hypervisor
 - Led the migration of legacy automotive control software (Simulink and C) towards compliance with the AUTOSAR 4.2.2 standard
 - Supervised undergraduate students (2+ years)
- Feb 2013 - Aug 2021 **IT Manager (on-demand)** Soltree Sustainable Solutions
Design, develop and maintain Joomla website (PHP, MySQL, HTML, CSS & JS), SOHO network, and Ubuntu Linux workstations.
- Jan 2018 - Apr 2018 **Graduate Teaching Assistant (CS 1XA3)** McMaster University, Canada
An introductory course covering core concepts in functional programming and practical programming skills in Bash, Haskell and Elm.
- Sep 2012 - Oct 2012 **Undergraduate Teaching Assistant** University of Twente, the Netherlands
A second-year relational databases course.
- Jun 2009 - Jul 2012 **Webmaster (part-time)** Engelen Shambhala, the Netherlands
Joomla E-commerce website design (HTML, CSS & JS) and customization (PHP & MySQL), SEO, performance optimization, maintenance

Education

- 2017 - Now **Ph.D., Software Engineering (Part-Time)** McMaster University, Canada
Developing program family generators using multi-stage programming and generics in (Meta)OCaml.
- 2014 - 2016 **M.A.Sc., Software Engineering** McMaster University, Canada
Researched generating multiple module decompositions in MetaOCaml, Haskell and Java. Initiated investigating paradigm-polymorphic program family generation.
- 2009 - 2013 **B.Sc., Computer Science** University of Twente, the Netherlands
Focused on: Java, Haskell, SQL, networking, and operating systems. Thesis paper categorizes Tor exit-nodes.

Selected Publications

- 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.
- 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)

Community Involvement

- Sep 2020 - Dec 2020 **Collaborator Repair Café Project** McMaster Academic Sustainability
Provided PC and mobile device repair and repurposing expertise.
- 2016 - 2017 **Life in Computing & Software (LiCS)** McMaster University
Co-founder & VP Tech of the department’s first graduate student club.
- Ran static website generated via Pelican and organized events