



Johan Herland

SOFTWARE ENGINEER · GIT EXPERT · TOOL SHARPENER

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“Move slow and mend things.”

Summary

- Passion for designing and implementing elegant and useful software solutions to challenging problems.
- Always looking for root causes and more fundamental solutions, rather than superficial patches and merely fixing symptoms.
- Shares knowledge and mentors colleagues. Excellent communicator from always studying and working in multilingual environments.
- Experience in distributed development with Git, contributing to open source, developing good tools to improve team productivity.
- Experience with all levels of the software stack:
 - low-level embedded Linux work, communicating directly with hardware components,
 - build systems, test infrastructure, CI/CD pipelines, both for S/W running stand-alone and embedded into H/W devices,
 - application-level programming, from high-level Python down to C on the bare metal.

Work Experience

Tweag

DEVELOPER PRODUCTIVITY ENGINEER

Delft, NL/Remote

September 2022 – Present

- Senior consultant, helping clients improve the software developer experience with tools such as Bazel and Nix.
- Co-maintainer of FawltlyDeps, a dependency checker for Python projects and Jupyter notebooks.

Cisco Systems Norway AS

SOFTWARE ENGINEER

Oslo, NO

October 2011 – September 2022

- Platform developer in the Webex Devices team, part of the Collaboration Technology Group.
- Development of multiple generations of Webex/TelePresence video conferencing endpoints.
- Embedded Linux development, integration of open-source and 3rd-party components.
- Maintenance of build systems for application development towards various custom H/W platforms.
- Git expert: trained developers and administered in-house Git infrastructure.
- Improved the developer experience in a large and complex codebase (decades of development, various custom hardware support, actively developed by hundreds of developers across many timezones).

Git project

CONTRIBUTOR

Online

May 2007 – November 2014

- Primary author of the *git notes* feature for attaching useful metadata to Git objects.
- Active participant in the Git community.

Opera Software ASA

CORE DEVELOPER

Oslo, NO

July 2004 – September 2011

- Maintainer of central components (Unicode and legacy encodings, selftest infrastructure, etc.), making them lightweight, efficient, and portable.
- Championed and implemented company-wide version control transition from CVS to Git.
- Unix developer until September 2007: Developed and ported Opera to embedded Unix/Linux-based platforms.

Relevant Skills

Natural Languages	Native Norwegian. Full professional English. Elementary Dutch. Elementary German.
Programming Languages	Python, C, C++, Bourne/POSIX shell. Learning: Nix, Rust, Haskell.
Other Languages	HTML, CSS, JSON, XML, SQL, \LaTeX , etc.
Methodologies/Practices	Test-driven Development, Agile Development, Design Patterns.
Operating Systems	Linux/UNIX user since 1996. NixOS, Arch, CentOS, Ubuntu, Debian, Gentoo, LFS, etc.
Embedded Development	Embedded Linux development, Android, build systems for cross-compiling own and 3rd-party software.
Systems development	How a modern Linux system is put together, systemd configuration, Filesystem Hierarchy Standard, etc.
Containers/Virtualization	Knowledge of Linux namespaces and isolation primitives, Docker/Podman and QEMU.
Security	Low-level security features like Seccomp, SELinux, Linux Capabilities, ASLR, RELRO, stack protection, etc.

Technical Writing

2025	Bazel and Testwell CTC++, revisited,	<i>Tweg blog</i>
2023	Separating debug symbols from executable,	<i>Tweg blog</i>
2023	Integrating Testwell CTC++ with Bazel,	<i>Tweg blog</i>
2023	Behind the scenes with FawlyDeps v0.13.0, matching imports with dependencies	<i>Tweg blog</i>
2023	Announcing FawlyDeps, a dependency checker for your Python code	<i>Tweg blog</i>

Public Speaking

2025	War story from the build system trenches:	<i>Kongsberg, NO</i>
	Integrating Bazel and Testwell CTC++ code coverage, NDC TechTown	
2025	FawlyDeps: Finding undeclared/unused dependencies in your notebooks and projects, FOSDEM 2025	<i>Brussels, BE</i>
2025	Debug fission: Separating debug symbols from executables, FOSDEM 2025	<i>Brussels, BE</i>
2023	Finding undeclared and unused dependencies in your notebooks and projects, PyData Global	<i>Online/Remote</i>
2022	The Git Parable, Tweg internal knowledge sharing	<i>Online/Remote</i>
2018	The Git Parable, NDC TechTown	<i>Kongsberg, NO</i>
2018	Building useful project utils in Python, NDC TechTown	<i>Kongsberg, NO</i>
2017	Making a Headless Android Device (with Patricia Aas), NDC TechTown	<i>Kongsberg, NO</i>
2016	Elegant Filesystem Interactions in Python using pathlib, ACCU Conference	<i>Bristol, UK</i>
2013	The Git Parable, ACCU	<i>Bristol, UK</i>
2012	The Git Parable, Meetup with the local Tekna chapter	<i>Oslo, NO</i>

Education

Queen's University

Kingston, Ontario, CA

BACHELOR OF SCIENCE WITH FIRST CLASS HONOURS

2000 – 2004

- Computer Engineering, Software Option.
- Received Dean's Award (above 80% grade average) in 2002 and 2003. Final standing: 84% grade average.
- Focus on software architecture, software development and real-time systems.
- 4-year intensive program with a final-year thesis project: *Robot Pool "Straight-Shot" Planner and Executor*:
 - Part of a larger research project in robotics and machine vision on creating a pool-playing robot.
 - Developed two calibration processes for Pool Robot in C/C++.
 - Published paper: *Robotic pool: an experiment in automatic potting*

Other Experience

Herland Software (sole proprietorship)

WEBSITE DEVELOPMENT AND ADMINISTRATION

June 1998 – January 2008

- Administered web and mail services for multiple customers and domains.
- Created web page layout and programming web applications.

Queen's University

Kingston, Ontario, CA

RESEARCH ASSISTANT, DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

April 2003 – August 2003

- Developed software for a research project in robotics and machine vision (Pool Robot).
- Low-level programming in C and higher level programming in C++.

TEACHING ASSISTANT

January 2003 – April 2003

- Assisted undergraduate students on laboratory assignments in a course on Data Structures and Algorithms.

Other Skills

Driver's License Dutch Class B.

Professional Memberships ACCU, IEEE, NITO

Hobbies – Cycling Road and gravel biking, cyclotourism, sportives, home mechanic.

Hobbies – Music Jazz Piano, music theory, playing various genres in big band and smaller settings.