



# Johan Herland

SOFTWARE ENGINEER · GIT EXPERT · TOOL SHARPENER

Industriestraat 59, 2624 BB Delft, Nederland

+31 6 19252349 | [johan@herland.net](mailto:johan@herland.net) | [herland.net/johan](http://herland.net/johan) | [github.com/jherland](https://github.com/jherland) | [linkedin.com/in/jherland](https://www.linkedin.com/in/jherland) | [twitter.com/jherland](https://twitter.com/jherland)

“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

Delft, NL/Remote

DEVELOPER PRODUCTIVITY ENGINEER

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

Oslo, NO

SOFTWARE ENGINEER

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

Online

CONTRIBUTOR

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

Oslo, NO

CORE DEVELOPER

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.

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## Technical Writing

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

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## Public Speaking

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

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## 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

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## 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.

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## Other Skills

<b>Driver's License</b>	Dutch Class B.
<b>Professional Memberships</b>	ACCU, IEEE, NITO
<b>Hobbies – Cycling</b>	Road and gravel biking, cyclotourism, sportives, home mechanic.
<b>Hobbies – Music</b>	Jazz Piano, music theory, playing various genres in big band and smaller settings.