

# Axel Karjalainen

16-year-old Software Engineer | Open-Source Contributor

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## Summary

16-year-old tech enthusiast who spends time hacking away at Rust projects and maintaining Linux and NixOS systems.

## Experience

### TET intern

2024-09-23 - 2024-09-27

UNIVERSITY OF HELSINKI

Helsinki, Finland

- Organic Chemistry lab working on lignin research
- CIMANET Doctoral Education Pilot

### TET intern

2024-05-20 - 2024-05-24

KUORI

Espoo, Finland

- Embedded programming using C++ and PlatformIO
- Automatic regression testing platform
- Development of an embedded system

C++   Embedded   Testing   Electronics   Nix

## Projects

### dt-tools

Mar 2024 - Present

- Device tree language server and linter
- Designed for live file validation
- Custom recursive-descent parser with error recovery
- Custom concrete syntax tree data structure

Rust   Parser   DTS   Embedded Linux

### Crafty 4

Dec 2020 - Aug 2022

ARCADIA TECHNOLOGY, LLC

- Game server controller
- Built using Python and the Tornado web server
- HTML+JS+CSS user interface
- MVC architecture

Python   HTML   CSS   JavaScript

### Better Otava

Jan 2026 - Mar 2026

Chrome and Firefox extension that improves the user experience of Otava's digital learning material by fixing major issues and adding features like keyboard shortcuts.

Digital Learning   TypeScript   React   WebExtension

## Education

15 ECTS from MOOC courses of Aalto University and University of Helsinki during 2021-2022.

## Technical Skills

### Languages

Python   TypeScript   Rust   C++   Java  
Scala   Kotlin   HTML   CSS

### Technologies

Linux   Git   PostgreSQL   React   Svelte  
Flutter   Jetpack Compose   Nix   Docker  
CI/CD

### Engineering

OpenSCAD   Fusion 360   FreeCAD  
3D Printing   Laser cutting

### Embedded platforms

ESP32   Raspberry Pi Pico   Raspberry Pi  
Arduino   Low-level Android

### Systems programming

Rust   LLVM   Nixpkgs   Embedded

## Languages

### Finnish

Native Speaker

### English

Fluent

## Interests

- Open-source development
- Local-first applications using CRDTs
- Sustainability in Technology
- IoT & Embedded
- Automation and DevOps
- Graphics Programming
- NixOS and declarative configuration
- Computer Networking
- Android mainlining
- Software A/V mixing
- Building side projects to automate daily tasks
- Exploring alternative OS designs
- Declarative text-based CAD applications