Henrik Tjäder | Curriculum Vitæ

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Experience

Vocational

2017–current **Embedded Systems Engineer**, *Grepit AB*, Luleå
Software development and product prototyping in automotive-, mining- and energy industry
Detailed achievements:

- Embedded firmware and HAL development for automotive low-power applications
  - Microchip atsame51, concurrent RTIC application in Rust: implementing bootloader, extensions to current HAL with CAN, AES, PUKCC, ICM, compile-time verified clocking abstraction
- Embedded Linux system build targeting Xilinx Ultrascale A53
  - Buildroot and Yocto tooling
- Firmware for portable battery driven gem inspection device
  - Written in safe Rust for NXP LPC1347 including user interface, safety shutdown and compliance testing
- Software verification, execution time measurement aided by KLEE symbolic execution
  - ARM Cortex-M4 HIL setup with Python scripted GDB parsing KLEE output
- Sensor operation and collision avoidance system on a STM32F7 mounted on quadcopter
  - Real-time analysis of LIDAR data, collision avoidance done with ultrasonic sensors
- Safety controller for emergency laser shutoff
  - Altera FPGA, VHDL, circuit board verification

2016–2018 **Lab supervisor and Teacher Assistant**, *Luleå University of Technology*, Luleå
Department of Computer Science, Electrical and Space Engineering

- *D0013E - Microcomputer engineering*
  Embedded systems, bridge between digital design and assembler, low-level C programming
  - 2018 2017 2016
- *D7020E - Robust and Energy Efficient Real-Time Systems*
  System analysis, model of execution, energy consumption
  - 2018, 2017
- *E7020E - Embedded Systems design*
  Circuit board design and production, embedded development and prototyping
  - 2018, 2017

2016–2017 **Unix Specialist**, *Koneo AB*, Luleå
R&D at Luleå University of Technology IT Department
Solution design and deployment of Elasticsearch, Graylog, Logstash and Ansible in large scale virtual environment

2013–2016 **Technical support**, *Proffice*, Luleå
Consultant to TeliaSonera AB, Mobile technology support

2013–2013 **Technical Support**, *TeliaSonera AB*, Luleå
First Line support for private and corporate mobile technologies

2011–2012 **Developer**, *EXERI*, Luleå
R&D iOS-app for Object Surveillance

2011–2012 **3D-CAD of buildings, photographer**, *Luleå Kommun Feriejobb, d3Factory*, Luleå
CAD modeling for real-estate agencies

Miscellaneous

2020–current **Core developer**, *Real-Time Interrupt-driven Concurrency (RTIC) project*

2015–2017 **IT-team member**, *STUK*, Luleå
IT operations including networking, payment terminals

2014–2020 **IT Full-stack, operations**, *XP-el Student association*, Luleå
Membership registry, web presence, access card, networking

Master thesis

Title *RTIC - A Zero-Cost Abstraction for Memory Safe Concurrency*

Supervisors Prof. Per Lindgren

Description Extensions to the Real-Time Interrupt-driven Concurrency framework written in Rust for embedded systems

Languages

Swedish Proficient *Native*

English Proficient *Cambridge Advanced English (CAE) Qualification: Grade A*

Experience

Skill matrix

■□□□□	basic knowledge
■■□□□	intermediate knowledge with some project experience
■■■□□	extensive project experience
■■■■□	deepened expert knowledge
■■■■■	expert / specialist

	Level	Skill	Years	Comment
Language:	■■■■■	Rust	5	*Embedded systems dev., bootloader, HALs, concurrency framework*
Language:	■■■□□	C	4	*Embedded systems development*
Language:	■■■□□	Python	4	*Prototyping algorithms, REST-APIs, Flask*
CI tooling	■■■■□	GHA, TravisCI, ZUUL	4	*Linting, build verification and delivery. HIL*
Version Control	■■■■■	Git, Pijul, SVN	10	*With various workflows, Gerrit, branching strategies*
Virtual env.	■■■■□	QEMU, LXC, Docker	8	*Small to medium virtual environments, cloud and on-premise.*
OS:	■■■■■	Linux	15	*Desktop, server, virtual and embedded*
Methods	■■■■□	SCRUM	6	*SAFe, developer roles primarily*
Text Analysis	■■■□□	Logstash, Grok, regex, Graylog	4	*Statistics, anomaly detection*
Databases	■■■□□	Elasticsearch, MySQL/MariaDB, sqlite3, MongoDB	2	*Data aggregation, log retention*
Markup	■■■■□	LaTeX, Markdown	10	*Documentation, presentations, reports*

Interests

MTB A perfect way to enjoy nature, one pedal stroke at a time

Snowboarding Surfing on fresh powder is something truly special

Kite surfing Brings snowboarding to a new level and makes those windy days something to enjoy