

JAN KONIARIK

C++ Senior

📍 Brno, Czech Republic

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🌐 github.com/koniarik

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WHO AM I?

I am creative opinionated C++ wizard growing towards architecture. I look for more than just development: processes, vision, weak-spots in the system.

C++20 ARCHITECTURE EMBEDDED LINUX STM32
REAL-TIME CI/CD TESTING GIT GOAL ORIENTED
FIRMWARE METAPROGRAMMING DOCUMENTATION

EXPERIENCE

09/2023 - now

Senior software engineer

Codasip

Tooling for analysis, diagnosis and processing of proprietary programming language.

- Took over a rewrite of the tool - led small team creating a new generation of the software. Handled new software architecture and team management. More than 10 times faster, more than 5 times easier to deliver new features, has unit tests.
- Handled architectural work for the team: work on specifying new language features, assessment of development cost. (Meta-programming facility, improvements to in-house preprocessor, dynamic integer)
- Acted as stand in for the team leader.
- Created variadic pointers library as a basic block for development of the new tool:
<https://github.com/koniarik/vari>

C++ / Architecture / Testing / Language Design

01-09/2023
part time

Consultant

Dronetag

Automatization of production testing.

C / Python / Zephyr / Embedded

2022 - 2023

Software Engineer

ISEE

Mentoring juniors, handling software quality, helping with architectural guidelines, developing middle-ware.

C++ / Real-Time / Middleware

2016 - 2024
part time

Teaching at university

Masaryk University

- **Onechip Controllers** Lead the course, prepared content, exams, and managed teaching assistants.
- **Real Time Systems** Oversaw mandatory project.
- **Teaching Lab** Soft-skill course for future teaching assistants.
- **Others:** *Algorithms and data structures, Programming in C++, Foundations of Programming*

C++ / Middleware

2014 - 2018
part time

Developer

Trustica s.r.o

Administrator and developer of multiple instances of ticketing system. Direct contact with customers

NON PROFIT

2024	TMOU 25 Logistics and production	Instruktoři Brno, z.s.
2024	Slowdating City Logistics and production of more sophisticated alternative to speed-dating	Instruktoři Brno, z.s.
2023	TMOU 24 Logistics and production, build clock with 1 km diameter.	Instruktoři Brno, z.s.

EDUCATION

2018 – 2020	Phd - Unfinished Low-cost legged robot, motion planning. C++ / ROS	Masaryk University
2018 – 2020	Master's Degree Motion planning. C++ / ROS	Masaryk University
2014 – 2018	Bachelor's Degree Software for legged robots. C++ / ROS	Masaryk University

LANGUAGES

Czech - native
English - efficient

HOBBIES

Warhammer 40k figures.

PROJECTS

2021 – now	Servio https://github.com/emsro/servio / https://hackaday.io/project/194236-servio	<ul style="list-style-type: none">• Smart servomotor for DC motors• Used STM32G431, moved to STM32H503• 10kHz current control loop<ul style="list-style-type: none">– 32x ADC samples over DMA per period– PID controls PWM• 2kHz position and velocity control loop, both use current control• Supports ADC potentiometer or quadrature encoder as position sensor• Velocity is estimated based on Kalman filter• UART as communication interface<ul style="list-style-type: none">– Interrupt/DMA-based– Text protocol for user friendliness– Entire servo configurable over UART (ie: PID parameters for all 3 loops)• Automatized testing<ul style="list-style-type: none">– host unit tests (parser, contro loops, ...)– host component tests (control loops in simulator)– device unit tests (peripheral configuration)– device control loop tests– black box tests (final firmware, tests on host)• HTML-based report from unit testing with interactive graphs/data for control loop tests
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