

Yevgeniy Yermakov

Senior Software Engineer | Robotics, Embedded Linux & Industrial Automation

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SUMMARY

Software engineer with 15+ years of experience across embedded Linux, large-scale device infrastructure and industrial automation, now focused on robotic control systems. Developed ROS 2 control software for warehouse robots, migrated a robotic depalletizer from a custom monolith to ROS 2, and built simulation-based CI testing that validates controllers without physical hardware. Earlier designed and ran a distributed platform serving 30,000+ remote Linux devices in production for 5+ years, with OTA updates and automated remote diagnostics. Experience spans firmware and industrial protocols up to backend services and CI/CD.

TECHNICAL SKILLS

Languages	Python, C++, C, Bash, SQL, Verilog
Robotics	ROS 2, motion planning & trajectory execution, industrial manipulators (KUKA) and collaborative robots (Universal Robots), NVIDIA Isaac Sim (digital twin), OpenCV, NumPy, industrial barcode scanners, hardware calibration, on-site deployment
Embedded	Embedded Linux, Buildroot, cross-compilation & toolchains, U-Boot, systemd, ARM platforms, RS-485 / RS-232 device drivers, GSM module integration, Z-Wave sensor integration, FPGA / RTL design (Verilog)
Protocols & Networking	OPC UA, MQTT, Modbus, SNMP, TR-069, TCP/IP, VPN, VLAN, Wireshark
Backend & Data	Flask, Django, REST API design, microservices, RabbitMQ, PostgreSQL, SQLite
Development	Git, SVN, AI-assisted development (Claude Code, Cursor), unit & integration testing, test-driven development
Infrastructure	Docker, LXC, Ansible, Jenkins, CI/CD pipelines, Zabbix
Spoken	Russian (native), English (professional working), Serbian (elementary)

EXPERIENCE

Robotics Software Engineer | Yandex

Aug 2024 – Sep 2026

Belgrade, Serbia

- Developed control software (Python, C++) for 6-axis industrial robotic manipulators and collaborative robots used in warehouse automation systems
- Migrated a robotic depalletizer from a custom monolith to a ROS 2-based distributed control architecture, unifying the codebase with other robotic systems and making it testable in CI
- Developed motion planning and trajectory execution modules for pick-and-place cycles
- Integrated industrial barcode scanning cameras into a robotic order consolidation system, enabling automated product identification during picking
- Built an NVIDIA Isaac Sim-based digital twin of a robotic depalletizer, enabling controller testing without access to physical hardware
- Integrated simulation-based tests into CI to run on every merge, catching controller regressions before deployment to physical robots and reducing manual testing

- Contributed to robotic manipulator integration with an AMR platform via a robot management system (RMS)
- Performed on-site debugging, hardware calibration and production setup

Career Break | Relocation to Serbia and professional development

Aug 2023 – Aug 2024

Senior Software Engineer | NPK ROTEK

Nov 2011 – Aug 2023

Moscow, Russia

- Developed embedded Linux solutions (ARM, Buildroot) for industrial and home automation systems
- Built and maintained embedded Linux-based automatic meter reading (AMR) and monitoring devices (C, Python, Flask, SQLite; OPC UA, MQTT, SNMP, Modbus)
- Designed and maintained distributed infrastructure supporting 30,000+ remote Linux devices, running in production for 5+ years
- Implemented OTA software updates enabling remote deployment across the fleet without on-site intervention
- Developed automated remote diagnostics that proactively detected device faults, reducing downtime and on-site maintenance visits (Python, Ansible, Zabbix)
- Developed data collection services for utility metering devices (Python, C++)
- Built backend services in a microservice architecture (Flask, Django, PostgreSQL, MySQL, RabbitMQ, MQTT, Docker)
- Built CI/CD pipelines for embedded Linux development, including cross-compilation, automated firmware builds, testing and deployment
- Integrated wired and wireless sensors (Z-Wave), actuators and video monitoring systems into a smart home controller
- Implemented TR-069 remote device management protocol in Wi-Fi router firmware (Linux, C)

FPGA Engineer | NIIVK im. M. A. Kartseva

2009 – 2011

Moscow, Russia

- Designed and implemented digital logic on FPGA using Verilog
- Implemented automated regression testing using Python
- Developed stimulus generators and validation scripts for RTL verification

EDUCATION

Moscow State Automobile and Road Technical University (MADI)

2006 – 2011

Engineer's Degree (5-year specialist), Automated Systems for Information Processing and Control

Coursework: control theory, computer architecture, operating systems, microprocessor systems, digital electronics, computer networks, databases, software engineering, data structures, discrete mathematics, numerical methods, probability & statistics, linear algebra.