# Ilya Stolyarov

## Embedded Software Engineer

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A am a programmer of embedded systems firmwares.
 I have experience in implementation by datasheets and electrical schemes of drivers for onboard chips or attached devices like sensors, servo-motors, etc. Familiar with interfaces like UART, CAN, USB, SPI, I2C, PWM, FMC. I have experience with network protocols like OpenCAN, Modbus, Ethernet, TCP-IP...
 I prefer to use Zephyr RTOS and know how to configure it including modules, board DTS files, drivers, KConfig parameters. I wide use tools like Git, Make, CMake, GCC/Clang.
 I have experience of hardware debugging by using oscilloscopes and logic analyzers. I can catch software bugs with SystemView RTOS analyzer and sigrok protocols decoder.
 I have knowledge in how Linux work and ready to work with it. The knowledge like how is work together bootloader, dts, kernel, initramfs, file systems, HFS, mouniting, system tools, etc...
 I am experienced a little in FPGA programming. I learned it since studied at university. Have worked with Xilinx Spartan and Altera MAX boards. I have done the course project where I was programming JTAG TAP controller on Xilinx board. Also, I have done one more FPGA project on Altera board during the work experience.
 Also, I am ready to support developers environment and infrastructure since have experience with preparing build environment by Docker containers for a VSCode devcontainer usage or CI pipelines running (GitLab CI). I have experiense in supporting Virtual Infrastructure of XenServer.
 At free time I like work on some of my pet projects. I am interested in IoT and learning for backend part, like Kubernetes infrastructure (k3s, storage provisioners, helm, etc...).
 I enjoy riding a bicycle in a forest or fun in riding a motorcycle gymkhana. I am In love with short kayak walkies. Ready to fun with windsurf, skates, snowboard and other similar activity.
 8 year work experience, 28 years old, single: no wife, no child, no pets.

## SKILLS

### Embedded Development
Master

C/C++ | Zephyr RTOS | FreeRTOS | STM32 | Stack only programming | GCC/Clang | Make | CMake | Linux

### Peripherals knowledge
Master

UART | CAN | USB | SPI | I2C | ADC | DAC | FMC | Timers

### Industrial protocols
Master

CANopen | Modbus | Ethernet | IP | TCP | UDP

### Embedded Systems Debugging
Master

Oscilloscope usage | Logic analyzers usage | SystemView | sigrok | Renode | Soldering

### CI/CD
Advanced

Docker | Docker Compose | Gitlab Pipelines | Github Actions

### FPGA programming
Intermediate

Verilog/SystemVerilog | Altera | Xilinx | ModelSim | cocotb

### Support Tools Programming
Intermediate

Python | Perl | TypeScript | Bash | SQL | MariaDB | Docker | Debian Packaging | OpenBuildService

### Infrastructure support
Intermediate

XenServer | TrueNAS | FreeRadius | LDAP | VMs | Containers | Portainer | MicroOS | MariaDB

### IoT Cloud Infrastructure
Learn

Kubernetes resources | k3s | kubectl | helm | MQTT | HiveMQ

### Web-based app prototyping
Support

HTML | CSS | TypeScript | React | Rollup

### Common

Git | GitLab | GitHub | Linux | Reading schematics | Datasheet exploring

## WORK EXPERIENCE

2014 - Current

**Embedded Software Engineer** at LLC "Third Pin"

Have been finished more than 20 commercial projects in embedded area including IoT, safety systems, shipbuilding.

- Pastilda: hardware password manager (STM32, ARM, Crypto Peripheral, SDIO, FatFS, FreeRTOS)

- Some control system (ARM, STM32, USB HID, FreeRTOS)
- MTUTA: Telemetry of vending machines (ARM, FreeRTOS, USB, SD, SIMCom, GSM, Ethernet, FTP)
- Information Display (Linux, Custom board, U-Boot, Qt libraries)

## PROJECTS

### Pastilda

2016 - 2017

https://bitbucket.org/thirdpin_team/pastilda (https://bitbucket.org/thirdpin_team/pastilda)

**Skills acquired:** C++ | Embedded | Open-source | crowdsupply

Open-source hardware designed to manage our credentials in handy and secure way.

### MTUTA

2018 - 2019

https://en.thirdpin.io/projects/communication-and-telemetry/mtuta (https://en.thirdpin.io/projects/communication-and-telemetry/mtuta)

**Skills acquired:** C++ | Embedded | FreeRTOS | USB | SIMCom

Vending machines remote management module. A large vending company approached for R&D of a modem for collecting and transmitting data from a geographically distributed network of vending machines.

### Just Run My Debugger!

2021 - Current

https://ila-embsys.github.io/justrunmydebugger/ (https://ila-embsys.github.io/justrunmydebugger/)

**Skills acquired:** Rust | Rescript | Tauri | React

Pet project, simple GUI for OpenOCD debugger.

### Ada lang on Zephyr RTOS

2020 - Current

https://github.com/zephyr-ada (https://github.com/zephyr-ada)

**Skills acquired:** OpenBuildService usage | OpenBuildService contributing | DEB packaging | GCC building | GCC patching | GitPod

It is a project where keep results of checking an idea of possibility to use Ada lang with Zephyr RTOS.
It contains:
- A repository with a proof of concept that Ada can run over Zephyr RTOS as a user application. Implemented with GitPod cloud IDE.
- Zephyr toolchain that compiled from sources with patches to enable Ada compiler.
- SDK that built into Docker image to use as VS Code's devcontainer.
- Toolchain DEB packages that build with OpenBuildService.
- CMake module for Ada support that added to compile Ada adb files with CMake.
- The minimal working piece of Ada GNAT library that implemented as Zephyr module.
- VS Code's tasks that added for easy firmware run on Renode emulator and attaching to shell.

### TerosHDL cocotb support

2021 - 2021

https://github.com/TerosTechnology/vscode-terosHDL/pull/86 (https://github.com/TerosTechnology/vscode-terosHDL/pull/86)

**Skills acquired:** Contributing | TypeScript | VSCode plugin | Verilog | SystemVerilog | OpenSource | cocotb

TerosHDL is an open source IDE for HDL developers. I contributed to them a cocotb support.

### Open Build Service

2022 - 2022

https://github.com/openSUSE/obs-build (https://github.com/openSUSE/obs-build)

**Skills acquired:** Contributing | DEB packaging | Perl

Open Build Service is a generic system to build and distribute binary packages from sources. I had contributed a new feature that I was need. As a result, I got some Perl experience and an experience of working with open-source project.

### JTAG TAP controller

2017 - 2018

https://bitbucket.org/IlyaStolyarov/jtag (https://bitbucket.org/IlyaStolyarov/jtag)

**Skills acquired:** FPGA | Verilog | SystemVerilog | Xilinx

The part of university course for knowing FPGA programming.

## EDUCATION

**Master Design of Embedded Computing Systems and Systems on a Chip** at ITMO University
2016 - 2018

**Major courses:** Parallel Computing | Systems on Chip debugging | System programming of Mobile and Embedded Systems | Network protocols | Security of Systems and Networks

**Bachelor Intelligent Technologies in Robotics** at ITMO University
2012 - 2016

**Major courses:** Electrical engineering basics | Electromechanical systems | Electrical machines | Control systems basics | Microcontroller control systems | PLC programming | Systems software | Computer vision basics | Networks and telecommunications | Information converters | Engineering drawing | Analytical mechanics | Technologies of structural materials treatment | Interchangeably of machinery parts

## LANGUAGES

### English
Near Fluent (B2-C1)

### Russian
Native Speaker

## INTERESTS

### Programming

**Skills acquired:** Rust | Ada | OpenBuildService | IoT | Kubernetes | GitPod

### Life

**Skills acquired:** Bicycle | Motorcycle | Short kayak walkies | Skates | Snowboard | Windsurf | Music theory | Piano | Guitar