Andrei GRAMAKOV

Embedded Systems Engineer

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Profile

I am an electronic engineer focused on embedded systems. My experience includes working in small teams and large multinational corporations in different areas (space, aircraft, IoT, semiconductors). I have strong knowledge of C, C++, and Python and a good understanding of electronics from bits to complex electronic systems.

Skills

Programming languages:	C, C++, Python, Assembler, ColorForth
Processor architectures:	ARM (STM32 series), AVR8 (ATTiny/ATMega series), GreenArray F18 (GA144), RISC-V, SPARC (LEON3), Xtensa (ESP32 series)
Communication protocols:	ARINC 429, CAN, CIP, I2C, RS-232, RS-422, RS-485, SPI, USB
Tools and technologies:	GDB, Microsoft DAP, OpenOCD, C++ STL, FreeRTOS, Python OpenCV, NumPy, CI/CD, Docker, GIT, SVN, Bash, PowerShell, Agile, GitLab, GitHub, Jira, Redmine, SCRUM, SOLID principles
PCB and schematic software:	Altium Designer, EAGLE CAD, Proteus, MultiSim, KiCAD
CAD software:	Autodesk Inventor, Autodesk AutoCAD, Fusion 360, SolidWorks
Mathematical modelling:	MathCAD, MATLAB, Octave, SciPy
Data bases:	MS Access, SQL
English language:	Professional working proficiency (B2)
Russian language:	Native proficiency (C2)
Czech language:	Elementary proficiency (A1)

Employment History

Senior Embedded Software Engineer (February 2021 - Now)

Company: **Rockwell Automation** (Prague, Czech Republic)

Activity: *Development of firmware for industrial automation computers*.

Tasks:
- Development of compatible with MISRA code according to the High-Level Design documentation
- Development of tests
- Code review
- Providing help and support to teammates

Technologies: C/C++; Python; GIT; ARM; ABOS; PLC; MISRA C; MISRA C++

Embedded Software Engineer (January 2019 - December 2020)

Company: **Espressif Systems** (Brno, Czech Republic)

Activity: *Development of tools and drivers for ESP-based processors. Involved in development of debugging tools like OpenOCD and GDB. Implementing and development of debug module based on DAP protocol; Implementing and developing USB driver for ESP32-S2 chip based on TinyUSB stack.*

Tasks
- Debugging tools development (Debug adapter for ESP-IDF VSCode Extension, OpenOCD)
- Middle-ware driver development (ESP-IDF framework)
- Unit tests development
- Preparing trainings for colleagues

Technologies: C/C++; Python; GIT; ESP-IDF; USB; VSCode Extensions; Powershell; CI; Docker; GitHub; FreeRTOS; TinyUSB; Xtensa; Raspberry; Microsoft DAP; OpenOCD

Embedded Systems Programmer (January 2018 - September 2018)

Company: **Scientific Production Enterprise Digital Solutions** (Moscow, Russia)

Activity: *I worked with SPARC and RISC-V based processors projects, and with Sputnik processor (ARM architecture). I developed libraries to operating with processors and peripherals; developed tests and testing software for developed processors, their peripherals and memory; debugged code with HDL models, FPGA, and prototypes layouts. All developed IC are for spacecraft purposes.*

Tasks:
- Processor design verification
- Low-level driver development
- Unit-tests development
- Development of debugging tools

Technologies: C; C++; Python; SVN; GIT; Cadence; SPARC V8; RISC-V; ARM; AMBA; I2C; SPI; RS-232; RS-422; RS-485; SpaceWire; CAN; RTOS; FreeRTOS

Chief Specialist of Flight Test Instrumentation Department (June 2017 - December 2017)

Company: **Sukhoi Civil Aircraft** (Moscow, Russia)

Activity: *I worked with Sukhoi Superjet 100 aircraft. My main duty was preparing the Measuring Onboard Systems for qualification trials. I programmed aircraft systems according to sensors set, developed SQL databases, wrote Python programs for information processing, and worked with measure sensors and tools.*

Tasks:
- Preparing hardware and software for coming trials
- Modeling trials and troubleshooting on aviation simulator
- Development of UI for trials
- Sensor nomenclature accounting
- Sensor database development

Technologies: C#/XAML; Visual Studio; MS Access; Python; MySQL; Entity relationship diagram (ERD); Acra KAM-500; ARINC 429; AFDX; Thermal Sensors.

Electronics Engineer (September 2015 - July 2018)

Company: **Bauman Moscow State Technical University** (Moscow, Russia)

Activity: *I participated in the military systems of intelligence and guidance development. My main area was in space data processing and recognition. In parallel with work projects, I was doing image recognition research.*

Tasks:
- Research and development in space imagery (image recognition)
- Development of experiments and experimental stands in support of current research

Technologies: Python; SciPy; OpenCV; Visual Studio; Eclipse; Octave; MATLAB; Autodesk Inventor; CCD devices; IR-, Vis-, UF- imagery devices; Raspberry Pi; ARM; STM32; CANbus; SPI; I2C; RS-232

Electronics Engineer (August 2012 - September 2015)

Company: **Research Institute of Radio-electronic techniques (BMSTU)** (Moscow, Russia)

Activity: *My work in the Research Institute was in a field of optoelectronic imagery systems for spacecraft and providing research in space satellite imagery systems.*

Tasks:
- Preparing on-ground demonstration of the satellite's (Chibis-M) system with our modification
- Research and development in space imagery (image recognition)
- Teaching Electronic Components Course for Bauman students

Technologies: C/C++, ColorForth, Visual Studio, AtmelStudio, Autodesk Inventor, MATLAB, Stack architecture processors, CCD devices, Arduino, AVR, CANbus.

Education

Master's degree / Specialist degree (September 2007 - Jull 2013)

Bauman Moscow State Technical University

Specialty: Radio-Electronic Systems and Devices with Specialization in Laser Location and Communication Systems

Thesis: "Development of Microsatellite's Onboard Hardware Complex"

Post-Graduate Program (September 2013 - November 2017, not completed)

Bauman Moscow State Technical University

Thesis: "Unified Radio- and Optoelectronic Remote Sensing"

Personal

Personal characteristics:	positive, enthusiastic, open-minded, collaborative
Hobbies:	robotics, wood crafting, art, literature, essay writing