

# Andrei GRAMAKOV

Embedded Systems Developer

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*Birth:* 02-aug-1990

*Location:* **Brno, Czech Republic**

*Links:* [linkedin.com/in/andrey-gramakov](https://www.linkedin.com/in/andrey-gramakov)  
[github.com/an-dr](https://github.com/an-dr)  
[cv.agramakov.me](https://cv.agramakov.me) (CV in PDF)

*E-mail:* [mail@agramakov.me](mailto:mail@agramakov.me)

*Skype:* don.grama

*Phone:* +420 725 332 130

During 8 years of a professional practice, I have participated in projects from an R&D stage to maintaining of complete projects. I have experience in development of space- and aircraft electronics, strong knowledge of C, C++ and Python.

Currently, I am working at Espressif Systems in Brno. I am a member of the Tool team (development of compilers, flashing and debugging software) and of the IDF Core team which develops components for ESP-IDF framework – drivers for ESP32 family.

## Skills

<i>Programming languages</i>	Assembler, C, C++, Python, ColorForth
<i>Processor architectures (MCUs)</i>	ARM ( <i>STM32 series</i> ), AVR8 ( <i>ATTiny/ATMega series</i> ), GreenArray F18 ( <i>GA144</i> ), RISC-V, SPARC ( <i>LEON3</i> ), Xtensa ( <i>ESP32 series</i> )
<i>Interfaces</i>	ARINC 429, CAN, I2C, RS-232, RS-422, RS-485, SPI, USB
<i>Tools and technologies</i>	GDB, Microsoft DAP, OpenOCD   C++ STL, FreeRTOS, Python OpenCV, NumPy   CI/CD, Docker, GIT, SVN   Agile, GitLab, GitHub, Jira, Redmine, SOLID principles
<i>PCB and schematic software</i>	Altium Designer, EAGLE CAD, Proteus, MultiSim, KiCAD
<i>CAD software</i>	Autodesk Inventor, Autodesk AutoCAD, SolidWorks
<i>Mathematical modelling</i>	MathCAD, MATLAB, Octave, SciPy
<i>Data bases</i>	MS Access, MySQL

## Work Experience

<i>Period</i>	January 2019 - now	(~2 years)
<i>Role</i>	<b>Embedded Software Engineer</b>	
<i>Company</i>	Espressif Systems (Brno, Czech Republic)	
<i>Activity</i>	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	
<i>Tasks</i>	<ul style="list-style-type: none"><li>- Debugging tools development (Debug adapter for ESP-IDF VSCode Extension, OpenOCD)</li><li>- Middle-ware driver development (ESP-IDF framework)</li><li>- Unit tests development</li><li>- Preparing trainings for colleagues</li></ul>	
<i>Technologies</i>	C/C++; Python; GIT; ESP-IDF; USB; VSCode Extensions; Powershell; CI; Docker; GitHub; FreeRTOS; TinyUSB; Xtensa; Raspberry; Microsoft DAP; OpenOCD	
<i>Period</i>	January 2018 - September 2018	(9 months)
<i>Role</i>	<b>Embedded Systems Programmer</b>	
<i>Company</i>	Scientific Production Enterprise Digital Solutions (Moscow, Russia)	
<i>Activity</i>	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.	
<i>Tasks</i>	<ul style="list-style-type: none"><li>- Processor design verification</li><li>- Low-level driver development</li><li>- Unit-tests development</li><li>- Development of debugging tools</li></ul>	
<i>Technologies</i>	C/C++; Python; SVN; GIT; Cadence; SPARC V8; RISC-V; ARM; AMBA; I2C; SPI; RS-232; RS-422; RS-485; SpaceWire; CAN; RTOS; FreeRTOS	
<i>Period</i>	June 2017 - December 2017	(6 months)
<i>Role</i>	<b>Chief Specialist of Flight Test Instrumentation Department</b>	
<i>Company</i>	Sukhoi Civil Aircraft (Moscow, Russia)	
<i>Activity</i>	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.	
<i>Tasks</i>	<ul style="list-style-type: none"><li>- Preparing hardware and software for coming trials</li></ul>	

	<ul style="list-style-type: none"> <li>- Modeling trials and troubleshooting on aviation simulator</li> <li>- Development of UI for trials</li> <li>- Sensor nomenclature accounting</li> <li>- Sensor database development</li> </ul>
<i>Technologies</i>	C#/XAML; Visual Studio; MS Access; Python; MySQL; Entity relationship diagram (ERD); Acra KAM-500; ARINC 429; AFDX; Thermal Sensors;
<i>Period</i>	September 2015 - July 2018 <span style="float: right;"><i>(2 years, 10 months)</i></span>
<i>Role</i>	<b>Electronics Engineer</b>
<i>Company</i>	Bauman Moscow State Technical University (Moscow, Russia)
<i>Activity</i>	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.
<i>Tasks</i>	<ul style="list-style-type: none"> <li>- Research and development in space imagery (image recognition)</li> <li>- Development of experiments and experimental stands in support of current researches</li> </ul>
<i>Technologies</i>	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
<i>Period</i>	August 2012 - September 2015 <span style="float: right;"><i>(3 years, 1 month)</i></span>
<i>Role</i>	<b>Electronics Engineer</b>
<i>Company</i>	Research Institute of Radioelectronic techniques (Moscow, Russia)
<i>Activity</i>	My work in the Research Institute was in a field of optoelectronic imagery systems for spacecraft and providing research in space satellite imagery systems.
<i>Tasks</i>	<ul style="list-style-type: none"> <li>- Preparing on-ground demonstration of the satellite's (Chibis-M) system with our modification;</li> <li>- Research and development in space imagery (image recognition);</li> <li>- Teaching Electronic Components Course for Bauman students</li> </ul>
<i>Technologies</i>	C/C++, ColorForth, Visual Studio, AtmelStudio, Autodesk Inventor, MATLAB, Stack architecture processors, CCD devices, Arduino, AVR, CANbus

## Education

- Education* | *September 2007 - July 2013*  
**Specialist degree (MD analog) in Radio-Electronic Systems and Devices with specialization in Laser Location and Communication Systems**  
achieved at Bauman Moscow State Technical University
- September 2013 - November 2017*  
**Post-Graduate Program**  
**with thesis Unified radio- and optoelectronic remote sensing.**  
not completed at Bauman Moscow State Technical University

- Languages* | **English:** Professional working proficiency (B2)  
**Russian:** Native proficiency (C2)  
**French:** Elementary proficiency (A1)

- Publications* | “Method of a spacecraft systems forming for continuous review of a local area on the Earth’s surface” (Russian: “Методика формирования спутниковых систем непрерывного обзора заданной локальной зоны на поверхности Земли”)  
V.P.Kazakov, V.V.Koryanov, A.G.Toporkov, V.A.Usachev, N.A.Golov, A.D.Gramakov. 2016

## Personal information

- Family status* | single, no children
- Personal characteristics* | positive, passionate, easygoing, open-minded
- Hobbies* | art lectures, literature, robotics, wood crafting, writing essays