



## Summary

5+ years of industry experience. Wide range of technical skills. Background in software, electronics, and physics. Worked at various stages of the product life cycle (concept creation, architecture, design, development, validation, and maintenance). A passionate learner. Strong communication and interpersonal abilities. Can work independently and jointly in fast-paced environments. Details at [vladimir-vakhter.com](http://vladimir-vakhter.com)

## Education

<b>PhD</b>	Electrical & Computer Engineering	Worcester Polytechnic Institute, US	CGPA: N/A	<b>Aug 2022 – Present</b>
<b>MS</b>	Electrical & Computer Engineering	Worcester Polytechnic Institute, US	CGPA: 4.0/4.0	<b>Aug 2019 – May 2021</b>
<b>Specialist (BS/MS)</b>	Electronics & Automation	Ural Federal University, Russia	CGPA: 5.0/5.0	<b>Sep 2010 – Feb 2016</b>

## Experience

- Research Assistant @ Worcester Polytechnic Institute, US** **Aug 2021 – Present**
- Mixed-signal integrated circuit design and embedded programming for biomedical IoT devices.
- Research Associate @ Worcester Polytechnic Institute, US** **Jun 2021 – Jul 2022**
- Developed a desktop application for communication with Bluetooth Low Energy (BLE) devices. Coded in C++/Qt.
  - Programmed the STM32WB55xx MCU to control peripheral units and transmit the acquired data via BLE. Coded in C with HAL.
  - Designed an OTP memory to store a chip ID. Worked in Cadence Virtuoso with TSMC 180nm CMOS process.
  - Built the read/write logic for the OTP memory and on-the-fly randomness test suite FIPS 140-1. Used Verilog and VHDL.
  - Proposed a threat modeling methodology for resource-restricted wireless biomedical devices.
- Software Engineering Intern @ Cadence Design Systems, US** **May 2020 – Sep 2020**
- Prototyped computational geometry algorithms for design rule checking in PCBs. Coded in C++ and GLSL. Utilized OpenGL API.
- Software Engineer @ Kalinin Machine-Building Factory, Russia** **Sep 2017 – Mar 2019**
- Designed real-time application and communication protocols for networked computers within a multifunctional all-terrain vehicle. Coded in C++/Qt for QNX OS. Used UDP, NTP, RPC, multithreading, mutexes, timers, and system pulses.
  - Configured and maintained a GitLab server via Docker for version control.
- Electrical Engineer @ Splinx (IC Realtime), Russia** **May 2016 – Aug 2017**
- Designed component libraries, analog and digital electronic schematics, and PCBs with KiCad EDA and Altium Designer EDA.
  - Developed firmware for microcontrollers. Coded in a mix of C++, Lua, and uPython.
  - Prototyped, debugged, and brought up the designed hardware/PCB assemblies and low-level software.
  - Communicated with suppliers/manufacturing partners, set factory requirements. Released specifications.

## Skills

### Software Engineering

Programming Languages:	C++ (std, Qt, SystemC), Python, Java, C, Shell, MySQL, MATLAB, Lua, uPython, Asm x51
Version Control:	Git (with both GitHub and GitLab), Bitbucket
CI/CD, Collaboration Tools:	Jenkins, Bamboo, JIRA, ClickUp, Trello
Testing:	Google Test (C++), Junit (Java)
Troubleshooting:	GDB, Valgrind, Clang
Operating Systems:	Linux (Ubuntu, Kali Linux, Fedora), Windows (incl. WSL2), QNX Neutrino
GPU Computing:	OpenGL API, GLSL, GLFW, GLAD
Virtualization Technologies:	Docker, VMware Workstation
Cloud Technologies:	Amazon Web Services – AWS (RDS, S3, API Gateway, Lambda)
Web Development:	React.js, Node.js, Bootstrap, jQuery, REST APIs, Swagger, Google Analytics, Firebase
Machine Learning:	Keras

### Electrical & Computer Engineering

Hardware Description Languages:	Verilog/VHDL
FPGAs:	Xilinx Artix A7-100T with Xilinx Vivado IDE
Embedded Programming / MCUs:	STM32WB55xx, STM32F3VCT6, ESP8266, Atmega2566, MSP430, ADuC847
Analog ASICs Design:	Cadence Virtuoso, Mentor Graphics suite (Calibre, ModelSim)
Circuits / Components / PCB Design:	Altium Designer, KiCAD EDA, Cadence Allegro
Waveform Specification / Debugging:	WaveDrom, GTKWave
Instrumentation:	Supplies, generators, VNAs, oscilloscopes, multimeters, soldering stations, microscopes
Simulation/Modeling:	ModelSim, Mathcad, SIMetrix, Micro-Cap

### Other

Additive Manufacturing:	3D Printing (printers: Creality, Ultimaker, and LulzBot; slicers: 3DPrinterOS and Prusa; CAD: Autodesk Fusion 360) and Laser Cutting.
Natural Languages:	English (fluent) and Russian (native)