

Zigmārs Rupenheits

Curriculum Vitae

☎ (+371) 26291057

✉ zigmarrs@gmail.com

🌐 [linkedin.com/in/zrupenheits/](https://www.linkedin.com/in/zrupenheits/)

Career Objectives

Conscientious electronics and math enthusiast seeking to deepen & apply knowledge of control theory, signal analysis, physics, computer science and math in practice by designing state-of-the-art electronic devices. Doing it in a systematic & structured manner. Constantly learning & striving for efficiency and to solve real-problems.

Work experience

- 2019-present **Electronics engineer**, *Institute of Atomic Physics & Spectroscopy*.
Medical device system architecture, electronics design & implementation; supervision of software and case design
- 2018-2019 **Embedded engineer**, *AERONES Ltd.*.
Battery management system HW & FW troubleshooting, improvements and maintenance, creation of drone's electrical wiring documentation, troubleshooting of drone's altitude hold functionality
- 2014-2016 **Laboratory technician**, *Faculty of Physics & Mathematics, Nanoelectronics group*.
Modelling and analysis of nonequilibrium quantum statistics of nanoelectronic devices
- 2014-2015 **Electronics engineer**, *Institute of Atomic Physics & Spectroscopy*.
Hardware and firmware design and maintenance, support of electro-optical devices designed for biomedical measurements
- 2012-present **Leader/teacher of Robotics Club**, *Riga State Gymnasium No. 1*.
Teaching basics of electronics & programming and designing DIY mini-sumo robots

Education

- 2019-ongoing **B.S. in Electronics engineering**, *Riga Technical University*.
- 2016-2018 **M.S. in Theoretical Computer Science**, *University of Latvia*.
Subjects studied: Design and analysis of fast algorithms, Number theory, Combinatorics, Graph theory, Probabilistic algorithms, Algorithm complexity, Mathematical methods of cryptography, Quantum computers, Deep machine learning, Digital design (FPGA programming).
Thesis (in Quantum computation): *Exact quantum query algorithms using single-quantum-query subroutines*

- 2012-2015 **B.S. in Physics**, *University of Latvia*.
Subjects studied: Classical mechanics, Electromagnetism, Optics, Electronics, Quantum physics, Linear algebra, Numerical methods, Calculus, Differential equations, Tensor calculus
Thesis (in Quantum mechanics): *Modelling of nonstationary dynamics of electron wavepacket*
- 2009-2012 **Second. ed., Math & Physics emphasis**, *Riga State Gymnasium No. 1*.
Extra subjects: C++ programming, Robotics

Technical Skillset

- Electronics Knowledge and experience of basic **FPGA programming** in **Verilog**
Experience doing programming for **Atmel**, **STM32** microcontrollers (both in C/C++ and Assembly)
Good knowledge of real passive component intrinsic properties and their effect on design
Good knowledge in discrete component selection for a design
Ability to quickly understand crucial IC datasheet details
Ability to effectively **use test equipment** to setup experiments for design verification or characterization
Proficiency in **Eagle CAD** (for schematic capture & **PCB design**)
Good understanding of **thermal design**
- Programming C, C++, Java, Haskell, Python, Scala, PHP, Verilog, ARM Assembly
Experience doing Android app programming & basic iOS app programming
Solid knowledge in using MS Office and LaTeX
Experience doing **3D modelling** in **SolidWorks** & printing with 3D printers
- Communication
- Languages Latvian – native
English – advanced (level C1)
German – elementary (level A1)

Electronic/embedded projects

- CCD-line sensor reading prototype using ATMEGA328P
Tone synthesizer and sequencer on STM32L476
Motor control board implementing FOC (field oriented control) of a 3-phase PMSM (permanent magnet synchronous motor). Cancelled project
E-ink display driver board

Personal projects

- Well designed lab power supply (*PSL-3604*) build
GPSDO setup for calibrating OCXOs
Miniature (battery powered) 8x8 LED matrix badge

2-wheel balancing robot
Ultra-Micron dosimeter build
Card game *SET* for Android

Hobbies and other interests

Reading about analog circuit design techniques
Repairing electronic test equipment
Taking electronic test equipment apart and reverse engineering it
Solving math, algorithmic & physics problems
Listening to jazz, classical and funk music
Playing acoustic music