

Zigmārs Rupenheits

Curriculum Vitae

☎ (+371) 26291057

✉ zigmarrs@gmail.com

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

Career Objectives

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.

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	Part search, datasheet analysis, comparison; Board cost/reliability/product longevity/NRE cost optimization depending on requirements & production quantities Thermal, power design Low noise analog techniques ESD protection, EMI, RF basics Working knowledge of principles and operation of modern test equipment Altium Designer (2 y. experience) Eagle CAD (6 y.) System troubleshooting and debugging
Embedded	AVR & ARM GCC, Make, CMake, STM32 CubeMx Verilog
Languages	C, C++ (11 y. experience) ARM & AVR-8 assembly Octave/MatLab Python Haskell Swift, Scala Web Tech: HTML5, CSS3, JS, Ajax, PHP, basic use of various APIs, frameworks, such as Vue, jQuery,
Tools	Git, Vim, Unix, GNU/Linux standard CLTs MS Office, LaTeX, Markdown
SW tech experience	Android app development & basic iOS app programming Supervision of Yocto, Qt, QML project OpenCV, TensorFlow
Knowledge	Testing: unit, functional, integration Basic design patterns Debugging, troubleshooting
3D CAD	SolidWorks modelling (5 y. experience), OnShape Optimize for 3D printing
Interpersonal	Eager to help others cooperative
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 & electronic music