MIKHAIL SOLOVYANOV, MASTERS

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SUMMARY

- Interdisciplinary electrical engineer, programmer and scientist with skills and experience in electronics, programming, machine learning, computer networks and measurements.
- Led development of a project resulting in a patent.
- Self-motivated, problem-solving and collaborative scientist with notable communication and management skills.
- Have no stress digging in interdisciplinary fields and learning new subjects on the fly.

TECHNICAL SKILLS

- **Electronics IC design:** Analog and mixed IC Design. Memory design and simulation, signals and systems, digital Electronics simulation, experience simulating and working with ferroelectric capacitors and memristors (cells of ReRAM memory), mixed signal simulation, *AC*,*DC*,*PZ*,*transient* simulation, parasitic parameters analysis. Control and signals theory. Operational amplifiers, comparators, DAC, ADC design. Experience of making layouts for $65\ nm$, $90nm$, $180nm$ nodes. Basic FPGA programming.
- **Electronics PCB level design:** Full stack PCB design from schematic or device idea to SMT Assembly. Embedded systems design (STM32,ESP32), DSP, DC-DC converters, drivers, analog electronics, RF, impedance matched design, audio effects design.
- **Programming:** General experience of collaborative functional and object-oriented programming. Working with data and data analysis. Data visualization. Basics of web dev.
- **System administration:** Advanced Linux administration including ARM systems, containers management and automation, deployment of VPN and other server client oriented soft.
- **Networks and Computers engineering:** Server and PC building for complicated tasks, building custom racks and networks.
- **Microscopy/Imaging/Materials:** SEM (Scanning Electron Microscope), Optical Microscope, ion arc and electron evaporator, resist centrifuge, lithography, ellipsometry, semi-professional Photography.
- **Mechanical skills:** Soldering (including 0403 SMD), Assembling and general mechanical engineering knowledge and experience. 3D slising and Printing.
- **Computational and Machine Learning, computer vision:** Applied machine learning algorithms. General knowledge in ML framework programming. General knowledge of machine learning methods. Optimization algorithms and basic CV algorithms.

SOFTWARE AND HARDWARE SKILLS

- **Electronics IC design:** Cadence virtuoso, SPICE, SPECTRE.
- **Electronics PCB design:** Altium designer, KiCad, STM32 cube IDE, Arduino IDE, PlatformIO.
- **Programming:** Python, C, bash, verylogA, MATLAB, Simulink, verylog.
- **DevOps and OS:** Docker, ancible, kubernetes.

RESEARCH AND WORK EXPERIENCE

Twin3d **LLC**

Leading electrical/software engineer, project manager, and network engineer *January 2021 to present*

- Built electrical and software system to trigger and access 240 DSLR cameras in time window of 10us. This biggest rig in Russia was made for making top edge 3D photorealistic models of people and animals for VFX, games, cinema etc.
- Developed software for obtaining and sorting photos from 240 cameras with USB, TCP and SSH protocols.
- Eventually managed team of 2 programmers and 2 mechanical engineers for making scanners upgrades.
- Built and maintained company IT infrastucture including servers for four RTX 3090 graphics cards for ML load and more.

MIPT Neurocomputing systems lab **BS + MsC**

Engineer *September 2017 to September 2021*

- This project coordinated by D.Negrov led to development of IC's with a $Hf_{0.5}Z_{0.5}O$ based FRAM with 5nm thin ferroelectric layer.
- Last year of work led to completion of essential analog components for memory testing chip. Developed comparators and Op Amps for ADC and DAC of SMU part of a chip.
- Responsible for development of a prototype of a memory compiler for new FRAM or ReRAM memory.
- Used computational methods to evaluate parasitics in prototype IC chips and measuring probes.

UVL Robotics **LLC**

Electronic engineer / DevOps *Feb 2020 to Dec 2020*

- Responsible for development and programming of a motherboard PCB for AI based drones.
- Created scripts for automated soft building on ARM64 Jetson Xavier NX computer.

Tech Agent Startup

Senior Electronics Engineer *September 2019 to July 2020*

- Developed method to generate electrical impulses read by contact pulse-meter as human pulse.
- Developed commercial electronic device to work with almost any training apparatus.
- These projects led to the submission of a patent.

Ailiton medical research **Unimed Group LLC**

Senior Electronics Engineer (as invited specialist) *July 2018 to December 2018*

- Led project focused on the developing a device to read a gel card using machine learning algorithms. Eventually led to the creation of a commercial electronic device.

EDUCATION

- Masters, applied physics and math, Moscow Institute of Physics and Technology (MIPT) department of quantum and physical electronics, 2021
- BS, Bachelor of applied physics and math, Moscow Institute of Physics and Technology (MIPT) department of quantum and physical electronics, 2019.

TEACHING AND MENTORING EXPERIENCE

- 2021 Led Laboratory work (creation of Scotty diode) on the department of solid state physics of MIPT.
- 2015-2019 - Mentored 6 undergraduates in their day-to-day physics and math SAT-level exam prep.
- 2017-2018 - Tutoring in summer camps (foxford.ru)

AWARDS

- Winner of The 62th MIPT Scientific Conference, in section of nanotechnologies.

CONFERENCE PRESENTATIONS

- International forum microelectronics 2019. Thesis: "Developing high energy efficient FRAM memory in neurocomputing application".
- The 62th MIPT Scientific Conference.. Thesis "Compiler for high energy efficient FRAM memory in neurocomputing application"
- The 63th MIPT Scientific Conference.. Thesis: "Development of SMU IC for testing energy efficient memories"

OTHER SKILLS

Software Photoshop, InkScape.
Languages English: professional proficiency. Russian: native.
Photography Have experience in professional photography.
Hobbies Making audio effects. Competition level dancer (WCS, Hustle), Really love building and maintaining computers.