

# Dr Vitalii Shkoldin / יטלי שקולדין

Engineer

As a proficient physicist in optics and semiconductors, I possess a strong analytical mindset and additionally broad experience in high-tech. I readily absorb new knowledge and can solve complex problems through innovative solutions. Moreover, I place high value on user experience.

## Work Experience:

### [Deeplay.io](#) – AI-driven animators for card games

July 2023 – now | Data Engineer

- Engineering algorithms for **data workflows** in Apache **Airflow**
- Optimized data processing using **python scripting** and enhanced **SQL** performance across ClickHouse, MySQL
- Maintaining documentation.

### [Pet project](#) – VPN service

Jan 2023 – Jan 2024 | Full stack

Self-learning: - Certified in Cloud Services (DevOps, Yandex);  
- SQL for Analytics; Docker (Karpov.Courses).

## ITMO University & Alferov University

Leading universities in the field of nanophotonics and semiconductors.

May 2017 – Dec 2022 | 5.5 years | Research engineer | Data acquisition & Data Analyst

- Assembling optical setups and direct involvement in execution of optical experiments (spectrometers, lasers, vacuum chambers etc... [detailed list on the second page](#))
- Performing **analysis** and **automation** of experimental data processing using **Python (Pandas)** and **data visualization** employing **Matplotlib** and **Seaborn** for presentations in publications and conferences
- Enhancing equipment capabilities through the use of microcontrollers (**C++**, **LabView**)
- Conducting market and technological research
- Secured 5 research grants (application, managing, teamwork, reporting)

### [NT-SPb](#) – a scientific equipment manufacturer specializing in atomic force microscopy and a spin-off of the global giant NT-MDT.

May 2018 – Sep 2022 | 4 years | Engineer

- Engaging in **R&D** and **customizing equipment** to meet client specifications
- Performing **on-site** and **remote** equipment **installations**, support
- Conducting software and hardware **testing**

### [Ioffe Institute](#) June 2012 – May 2017 | 5 years | System Administrator & Student

- Research, **Data analysis** and processing with Python, **NumPy**, **MATLAB**

### [Local ISP](#) Sep 2011 – May 2013 | 2 years | System Administrator

- Adept at efficiently tailoring **Debian Linux** to suit any specific objectives (**iptables**, **BASH**)

### [Zoo.SPb.ru](#) – Online Pet Store

2009 – 2011 | 2 years | Full stack engineer

- Full Stack Web Developer (**LAMP stack**, deployment, support, CMS implementation, front-end design, content management, optimization, and PHP module development)
- [Odo](#) administration (**ERP & CRM system**), **PostgreSQL**, synchronization, custom **Python module development**
- **Predicting** the purchases of each customer.
- **Integration** with transportation logistics systems for delivery scheduling, time allocation (up to 15 min precision), and SMS notifications via API.

Israeli citizenship

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## Additional experience

Math Statistics, Algorithm Solving, Git, YouTrack, JIRA, PyCharm, DataSpell, Jupyter, Basics of Machine Learning, Orange Data Mining tool, advanced Microsoft Excel, Apache AirFlow, dbt, ClickHouse, SQL, Redash, LaTeX, electrical circuits, DIY IoT

## Education

### [Ph.D. in Physics](#)

Cond-matter physics  
June 2022 | St. Petersburg  
ITMO University

### [M.Sc. & B.Sc.](#)

Electronics and nanoelectronics  
2011 - 2017 | St. Petersburg  
Polytechnic University

## Languages

- o English
- o Russian (native)

## Related scientific background

I have extensive experience with:

- Scanning Probe Microscopy (AFM and especially tunneling microscopy)
- Scanning Electron Microscopy
- Focused Electron Beam-Induced Deposition
- Optical microspectroscopy
- Spatial manipulation with nanoparticles
- Vacuum equipment – work and service
- Reverse engineering of equipment protocols
- Coupling different equipment
- Big data array analysis and data manipulation automation
- Programming on Python (NumPy, Pandas...), LabView and easy operate with different internal hardware languages
- Big data array analysis and data manipulation automation
- Programming on Python (Pandas, Numpy, BeautifulSoup4, pyserial...), Bash
- LabView and easy operate with different internal hardware languages (ex. Motorized Stage...)

Familiar with:

- Thorlabs optical components;
- AIST-NT SmartSPM and Combiscope, atomic force microscopes with optical access;
- Scienta Omicron VT AFM XA 50/500 and VT650 – Ultra-High vacuum scanning probe microscope
- NT-MDT and NT-SPb various atomic force microscopes;
- FEI Quanta Inspect S scanning electron microscope;
- Zeiss Crossbeam Neon 40b scanning electron microscope;
- Kleindiek Nanomanipulator MM3A-EM (nanoparticle manipulation in SEM);
- Horiba LabRAM HR-800 Raman spectrometer;
- Princeton Instruments SpectraPro SP-2500 high-sensitivity spectrometer;
- Various fiber spectrometers (Avantes, OceanInsight, etc.);
- Keithley Instruments and Tektronix equipment;
- Hand-made optical setups;
- Hand-made motorization and automation based on Arduino and ESP8266.