Nikolai Nekrutenko

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Education

Cornell University, Ithaca, NY Aug 2021 - Present

Undergraduate pursuing a Major in Physics with a Minor in Computer Science

- Completed: Calculus II & III, Differential Equations, General Chemistry I & II, Honors Mechanics and Special Relativity, Honors Electricity and Magnetism, Introduction to Computing with Python
- Current Semester: Oscillations, Waves and Quantum Physics, Linear Algebra, Electronic Circuits

Experience

Cornell University, Teaching Assistant Aug 2022 - Present

Lead office hours and a weekly lab section for an introductory applied physics course about nanoscience and nanotechnology. Regularly grade assignments, give constructive feedback, and mentor students.

Cornell University, Student Researcher Mar 2022 - Present

Member of the Fatemi lab, an applied physics lab. Interfacing with older equipment and sensors by developing a package to programmatically run experiments, while sweeping over certain parameters.

Cornell Blockchain, Research and Development Team Member Sep 2021 - Present

Working on gathering and analyzing on-chain data as part of a research paper about dark pools on a public blockchain and helping with club recruitment by interviewing applicants.

The Rocket Lab Initiative, Payload Engineer Sep 2020 - Jun 2021

Prototyped a Raspberry Pi sensor payload in a team for a model rocket to assess the rocket's actual performance against that of computer-simulated models in a Pennsylvania State University outreach.

State High Model Aeronautics Club, President and Co-Founder Sep 2019 - Jun 2021

Co-founded a club focused on learning about aeronautics through the design, construction, and flight of remote-controlled model aircraft. Wrote several grants to accumulate over two thousand dollars in funding.

A Mountain Wind Martial Arts, Instructor Feb 2013 - Present

First Degree Black Belt in Tang Soo Do, a Korean Martial Art. Volunteer as an instructor, helping lead class and aid students with the practical and philosophical applications of the martial art.

Projects

QCoDeS-Interfacing Jun 2022 - Present

Bundle of installation shell scripts, drivers, well-documented documentation and jupyter notebooks to setup a computer for programmatic interfacing with older lab equipment over the GPIB interface with Python and QCoDeS, a Python data acquisition framework. My current research project for the Fatemi Lab.

Raspberry Pi NeoPixel Audio Visualizer Jun 2022 - Present

Co-designed and wrote a program that visualizes the waveform and intensity of music for a custom-built individually-addressable RGB led matrix using fast Fourier transforms in Python on a Raspberry Pi.

Building and Maintaining a Personal Website Apr 2020 - Present

Build and regularly update my personal website using Hugo, Netlify and Google Analytics with an integrated photo gallery. Enabled the website to gain traffic with Google Search Console.

Constructing and Flying FPV Drones and Aircraft Oct 2019 - Present

Built and flown several FPV drones and aircraft with autonomous flight capabilities from scratch using open-source flight software Betaflight and iNav with custom-designed 3D printed components.

Skills/Certifications

- Certifications: FAA Part 107 Remote Pilot Certificate, Technician Level FCC Radio License
- Fluent in: Russian, French, English
- Languages and Tools: Python, Java, Javascript, Unix, Shell scripting, git, Jupyter Lab, Pandas
- Website Design: Hugo, Netlify, GitHub Pages, Google Analytics
- Software: Fusion 360, Cura, Blender, KiCad, Photoshop, Premiere Pro, DaVinci Resolve, OpenRocket
- Prototyping Skills: Soldering, CNC design and usage, CAD, 3D printing with SLA and FDM systems
- Soft Skills: Leadership, Adaptability, Critical thinking, Communication, Teamwork
- Misc: Arduino, Raspberry Pi, Photography, Cinematography, FPV drone construction and piloting