Oliver Pranis

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EDUCATION

California Institute of Technology — Pasadena, California
Bachelor of Science in Electrical Engineering — GPA: 3.9 — Expected 07/24

PROJECTS

50 Hz - 500 kHz multi-waveform function generator design. — March - June 2023
- Voltage-controlled oscillator design, AC to DC power, filter, wave shaping circuitry.
- Implementation of various op-amp circuit blocks.
- SPICE simulation, PCB design, troubleshooting, use of lab equipment.

8-bit CPU Digital Design and Verification Using a Hardware Description Lanuage. — January - March 2022
- Design of Control Unit, ALU, Data and Program Memory Access Units.
- Implementation and testing on a CPLD using ABEL hardware description language.

Embedded System Design on an AVR Microcontroller Using Assembly. — March - June 2022
- Implementation of the Binario game.
- Communication protocols, main game loop with interrupts and timers, user interface routines.
- Assembly language programming and debugging.

SKILLS

Electrical Engineering: VHDL, FPGAs, Analog Design (Cadence), LTspice, PCB Design (Altium), Lab equipment usage.
Programming: Python, Java, C, Assembly, MATLAB, full stack web development.

WORK EXPERIENCE

Axonics — Irvine, CA
Electrical Engineering Intern — June - August 2022
- Testing custom test fixture systems used in validation and design of Implantable Pulse Generators.
- Designing software, and scripting for test fixture data analysis.

TEACHING ASSISTANTSHIPS

- Introduction to Digital Logic (digital design, computer architecture, 8-bit CPU design).
- Electronic system prototyping (designing, constructing and testing a system from a schematic to a soldered prototype).
- Introduction to Programming Methods (fundamental data structures and algorithms).

RESEARCH

Design and characterisation of electronic and photonic integrated circuits. — June, 2023 – ongoing
Professor Hajimiri's Research Group, California Institute of Technology — Pasadena, California
- Development of a coherent optical receiver for fiber optic communication applications.
- Use of photonics and electronics laboratory equipment.

Multiwavelength Coupling with Waveguide-Integrated Optical Metasurfaces. — July, 2021 – September, 2021
Atwater Research Group, California Institute of Technology — Pasadena, California
- Passive single-wavelength, and switchable multi-wavelength metasurface design.
- Experimental charazterization in FDTD Lumerical simulations.

Fabrication and Assessment of Single CdS Nanowire Photodetectors. — September, 2018 – April, 2019
Institute of Solid State Physics, University of Latvia — Riga, Latvia
- Synthesis of CdS nanowires using vapour-liquid-solid method.
- Creation of light-sensing detectors using a scanning electron microscope and evaluating their performance.

INTERESTS

- Game development with friends using object-oriented programming. Chosen to represent Latvia internationally.
- 13 years of experience in solo and ensemble accordion performance with awards in international competitions.
- 5 years of experience in choral performance with tours and awards internationally.
- Participation in university badminton and volleyball clubs.