

# Nayiri Krzysztofowicz

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## EDUCATION

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### University of Virginia

Candidate for B.S. in Computer Engineering and Mathematics

**Honors:** James E. Miller Award (*top 2 students of UVA ECE department*), Tau Beta Pi,

Rodman Scholar (*UVA engineering honors program*), Eta Kappa Nu, Intermediate Honors, Dean's List

**Activities:** Engineering Student Council (*3rd Year Rep, Health & Wellness Director, 1st Year Rep*), Tau Beta Pi (*Treasurer*),

The Spectra – STEM undergrad research journal (*Publicity Chair*), Outdoors Club, Armenian Student Association

Charlottesville, VA

May 2020 (expected)

GPA: 3.96/4.0

## SKILLS

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**EE:** FPGA, Verilog, VHDL, Cadence Virtuoso, LabVIEW, MSP430, NI Ultiboard

**Courses:** Self-Powered IoT Systems, Computer Architecture, VLSI Design, Embedded Systems (I & II),

Computer Networks, Digital Signal Processing, Digital Image Processing

**CS:** C, C++, x86 Assembly, Bash, MATLAB, Python, Visual Basic, Git

**Courses:** Operating Systems, Algorithms, Data Structures, Software Engineering, Discrete Math

**Math Courses:** Numerical Methods, Basic Real Analysis, Probability, Linear Algebra, Ordinary Differential Equations

**Languages:** English, Russian, French (fluent in all)

## EXPERIENCE

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### Robust Low Power VLSI Lab, University of Virginia

Charlottesville, VA

#### Undergraduate Researcher

Dec 2016 - present

- Developing a feedback loop from temperature sensor to clock that interpolates temperature data and serially outputs tuning bits to a clock, to develop a temperature-stable on-chip clock.

Skills: FPGA, Verilog, SPI, PCB design

- Used PyCell and the Berkeley Analog Generator (BAG) to assess feasibility of auto-generating standard cell layouts with custom parameters.

### HP, Inc

Corvallis, OR

#### Silicon Design Intern

May - Aug 2019

- Worked on circuit design team for HP print; team was responsible for all thermal inkjet printing circuits.
- Created 48 transistor layouts for a minimum-area standard cell library (simple logic cells, latches, and flip-flops); reduced standard cells by an average 68% (ranged from 45-80%).

Skills: layout, schematic simulation, DRC, LVS, PEX, auto-characterization of library, Bash

#### Writing Systems & Testbed Intern

May - Aug 2018

- Optimized user interface of an HP vision system written in Python using PyQt5 framework.
- Wrote script (1000+ lines) in Visual Basic to execute printer commands from a user dialog-box during testing.
- Managed shipment and setup of 40 prototype printers to test new HP ink cartridges.

### NASA Langley Research Center

Hampton, VA

#### Cost Team Intern

May - Aug 2017

- Gathered data on >70 NASA missions to develop parametric cost model for the Science/Technology of missions; used NASA cost database to extract data and MATLAB to run analyses (regressions, machine learning algorithms).

### ECE Department, University of Virginia

Charlottesville, VA

#### Teaching Assistant

2017 - 2019

- Aided instruction of ECE 2630 (Circuits), ECE 2660 (Electronics) and ECE 4332/6332 (VLSI Design).
- Held weekly office hours, graded homework and lab assignments.

## RELEVANT PROJECTS

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**Self-Powered Fleet Tracker:** 5-member senior design project created system with 2 solar-powered roaming nodes that transmit AES-encrypted GPS data using long-range (LoRa) modulation to a central node for decryption and display on a laptop.

**Multi-Threaded Computer Game:** Implemented a real-time operating system (RTOS) on a TM4C123 microcontroller to create a multi-threaded game on a plug-in module. Game included randomly-generated threads that drew moving bitmaps on an LCD screen, a cursor controlled via joystick and pushbutton, and music playing from a microphone. Project was voted best in class.

**RISC-V Processor:** Implemented 5-stage pipelined RISC-V processor in VHDL capable of executing 38 different instructions.

**Bacteria-Counting:** Wrote program to count *Shewanella* bacteria in confocal microscopy images using different binary thresholds and image differencing. Project determined best in class by professor.