Julian Nicolai

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Available May 2021 – 8 months

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Education

Carleton University — Ottawa, ON
Bachelor of Electrical Engineering, Co-op Option — *Sept. 2019 – April. 2023*
Second year, GPA: 10.4/12.0 (A-)
Dean's Honor List 2019-2020; David A. Golden Award

Experience

Mevex Corporation — Ottawa, ON
Software Developer Internship — *May 2020 – August 2020*

- **Wrote Javascript and Python based software** which improved monitoring and record-keeping of conveyor belt systems, leading to faster downed-machine response times
- **Designed and implemented** an intuitive and convenient UX that helped signifigantly reduced the amount of time required to accomplish common tasks
- **Employed Git for version control** and project management resulting in more robust work-flow, faster development, and easier feature integration
- **Optimized algorithms** through regular code reviews and software profiling, reducing the system resources required allowing it to run on less powerful hardware decreasing implementation costs by 26% per unit
- **Developed ways to manage and control high data throughput** from parallel network video feeds, allowing the ability to record, store, and play back higher resolution video
- **Created concise application documentation** to bolster usability and reduce training times
- **Produced distributable installer binaries** with Pascal scripts to promote ease of installation, allowing for machines to be up and running 30% faster than manual installation

Staples Canada — Keswick, ON
Head Computer Technician — *February 2016 – July 2017*

- **Preformed diagnostics on machines** and used an information-driven approach to repairing computers that helped quickly identify issues and reduced turn-around times
- **Wrote batch scripts** to automatically setup & install custom configurations of software on computers that helped reduce setup times by 83%; especially valuable when faced with large volumes of customers
- **Contracted to build** an Arduino based warehouse door ringer using magnets and reed switches to bolster security and deter theft

Projects

Weather Satellite Image Reception & Decoding: Built and used a homemade quadrifilar helical antenna (using PVC pipes and coax cable) to capture data from both digital (METEOR M2-2) and analog (NOAA-15/18/19) satellites above. The geostationary satellite GOES-16 was also received using a repurposed Wi-Fi antenna. Gained insight into orbital mechanics, RF communication technologies, and software defined radio.

Analog PWM Fan Controller Using 555 Timer: Using Multisim software, designed and simulated a 25 kHz PWM controller to drive a computer fan; used a potentiometer to control duty cycle. Soldered onto compact perfboard, placed into a 3D printed case designed in Autodesk Inventor. A carbon filter was affixed to the fan to remove solder fumes.

***Conway's Game of Life* Python Based Simulation:** Developed an interactive simulator for cellular automata that generates GIF animations using John Conway's *"Game of Life"* algorithm; a user issues commands to set the initial state, board size, time scale, and place items, before then starting the simulation.

Skills

Languages: Python, C, Java, Javascript/NodeJS, LaTeX

Software: Git, Linux, MS Word & Excel, Eagle, Multisim, Modelsim, Autodesk Inventor, Fusion360

Equipment: Digital/Analog Oscilloscopes, Function Generator, Multimeter, Soldering

Hardware: Arduino, Raspberry Pi & Pico, 3D Printing