# Daniel Slovich

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## Education

**George Mason University** — *Fairfax, VA*
*Bachelor of Science in Electrical Engineering* — *August 2018 – May 2021*

**Northern Virginia Community College** — *Annandale, VA*
*Associate of Science in Electrical Engineering* — *May 2017 – August 2018*

## Technical Skills

**C Programming** — *4 years*

**20+** Algorithmic memory/file/data management projects

**1** Custom embedded system firmware design (RPi, Linux)

**MATLAB/Simulink** — *4 years*

**20+** Signal processing projects (filter design, digital processing, spectrum analysis, probability theory)

**10+** Control theory projects (state space modeling, system observability/controlability/stability analysis)

**C++** — *3 years*

**15-20** Algorithmic memory/file/data management projects

**10+** Kinematics/robotics algorithm simulations for rovers, tool arms, and drones (forward, inverse, pseudo-inverse)

**Java** — *3 years*

**15-20** Algorithmic memory/file/data management projects

**1** App front end GUI & back end ("flight booking"; account creation, login, flight selection, search, etc.)

**VHDL** — *2 years*

**15-20** Projects (entity and architecture design; behavioral, dataflow, and structural)

**1** 32bit processor (MIPS ISA) written to Xillinx Artix-7 FPGA (full module development/testing/timing analysis)

**Python** — *2 years*

**8-10** Robotics sim projects (kinematics and control design with IPC (ROS), control over UDP, etc.)

**8-10** Analog circuit sampling projects using hardware libraries and/or manual ADC

**Circuit/PCB** — *2 years*

**12** Radio frequncy PCB board designs (AM, FM, generation/modulation/demodulation, PLLs, filters, etc.)

**1** Fully custom circuit/board design/creation/assembly and implementation

**Additional** — *1-2 years*

LaTeX, Lua, ROS, Assembly (x86, ARM, MIPS)

## Relevant Courses

**FPGA**

Digital System Design, Digital Electronics and Logic Design Lab, Computer Organization — *VHDL, Assembly*

**Embedded Systems**

Embedded Systems and Hardware Interfaces, Robot Design, Humanoid Robotics — *C, C++, Python, ROS*

## Work Experience

**Instrument Repair and Technician** *November 2015 – December 2016*
*Alvas Music* *San Pedro, California*

- Developed and instated standards for customer records, instrument check-in and check-out, logging, and pricing
- Performed repair, set-up, and modifications of customer instruments to various customer-defined specifications
- Generated new repair income stream, and increased customer base

**Information Technology Operations Analyst** *February 2015 – June 2015*
*Red Bull* *Santa Monica, California*

- Imaged corporate employee devices and provided on site support in person, over the phone, and via email or ticket
- Ensured proper training for users, on-boarding of new employees, handling incidents, service requests and installs
- Provided deployment and support of Cisco, Xerox and Crestron A/V and teleconference hardware

**Genius, Service Specialist, Visuals Specialist, Sales Specialist** *February 2011 – November 2014*
*Apple Inc.* *Fairfax, Virginia*

- Apple Certified Mac Technician with service qualifications in Apple computers, mobile devices, OS X and iOS
- Performed triage and repair of computers, devices and networks in large volume appointment-based environment
- Facilitated and conducted company held classroom training of technicians and sales employees
- Conducted customer training workshops on Apple products and services

## Project Preview

**Subaquatic Optoelectronic Sensor** *August 2020 – June 2021*
*Python, MATLAB, Fusion 360, EAGLE, Embedded Systems, SMT/Point-toPoint Solder, Optics*

- Top-down design of a fiberoptic based water sensor measuring sample turbidity, temperature, and salinity
- Solely researched, designed, and modeled temperature sensor harnessing semi-conductor properties
- Performed device design, modeling, and simulation utilizing MATLAB and PSpice
- Designed 3D printed components for each sensor using Fusion 360
- Designed and created all circuits, schematics, and PCB laydowns in EAGLE
- Part of a six member team collaboration with periodic meetings and progress reporting
- Desktop device created; Initial requirements met; Extensive testing, calibration, and documentation was completed

**5-DOF Robotic Arm** *January 2021 – June 2021*
*Python, Gazebo/Coppellia Sim, Embedded Systems, Kinematics, Fusion, 3D Printing*

- Development and creation of a physical 5 degree of freedom robotic arm
- Forward and Inverse Kinematics fully modeled in Copellia sim
- Utilizes Dynamixel XL330 smart servos with internal position, force, and torque sensing for a closed loop design
- Final construction completed using Arduino, printed parts, and servos with functional testing performed

**32 Bit Processor** *January 2019 – December 2019*
*FPGA, Embedded Systems, VHDL, Assembly*

- Development of a 32 bit processor from scratch emulating the MIPS architecture
- Individual component behavior and architecture coded using Xilinx Vivado and created to run the MIPS ISA
- Bottom-up integration and testing of individual blocks with custom test cases using VHDL test benches
- Final design programmed to the Xilinx Artix-7 FPGA to verify the proper execution of sample instructions