

# Nicolas Diken

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## EDUCATION

**San Jose State University**, M.S. Computer Engineering

**January 2020 – Present**

*Graduation: Dec. 2021*

**San Jose State University**, B.S. Electrical Engineering

**August 2016 – December 2018**

## WORK EXPERIENCE

**Byton**, Santa Clara CA, *Hardware Diagnostics Engineer*

**August 2018 – Present**

- Designed driver-level tests using C/C++ for variety of chips: DSP (TDM), Amp/Mic (A2B), SERDES (GMSL2/FPD-LinkIII), radio, flash storage (SPI/I2C), camera (MIPI CSI-2), and display (DSI).
- Modified and optimized BSP for ADI SHARC Audio Processor firmware to fit the needs of our system. Tests designed using this DSP (running Audio Weaver) allowed for any DSP-based tests to be used, including FFT, filters, and wave generators.
- Utilized googletest to create testing infrastructure for hardware-level bringup and design verification of infotainment boards.
- Created new standard for testing infrastructure which allows for portability of tests with minimal overhead to engineers.
- Created CGI server and automation scripts in python to flash boards, execute tests, and return gathered data to Jenkins and Jira.

**Maxim Integrated**, San Jose CA, *EE-Sim Engineering Intern*

**May 2018 – October 2018**

- Used python and DataNitro in combination with SIMPLIS/SIMetrix (a SPICE-based power circuit simulator) to create a tool to fully automate testing & data extraction of any SPICE-based power system design.
- This also included stepping of circuit parameters, specs, measurements, and component values to create a seamless tool which allows for infinite expandability & applications.

**Nokia ION**, Mountainview CA, *Electrical Engineering Intern*

**May 2017 – August 2017**

- Performed a series of tests analyzing serial communication signals (I2C, SPI) as well as a complete DVT on an array of high-power DC/DC converters.
- Worked in a team to design an autonomous fan control system using the MAX31740 Fan-Speed Controller.

**Sentient Energy**, Burlingame CA, *Electrical Engineering Intern*

**July 2016 – August 2016**

- Conducted testing on Sentient Energy's flagship device, MM3, specifically the current measurement system.
- Improved accuracy of the current measurement system through hardware implementations.

## PROJECTS

**IEEE SJSU Micromouse Team**, *Team Leader*

**May 2018 – November 2018**

- Designed/built a fully autonomous mouse to learn and solve a maze at high speeds using the ATSAM4SD32B (ARM Cortex-M4) MCU.
- Peripherals included: IR & ultrasonic sensors, H-Bridge motor drivers, optical encoders, and brushed DC motors.

**Autonomous Firefighting Robot**, *Co-Leader*

**September 2017 – May 2018**

- Designed/built a fully autonomous firefighting robot which can navigate a room, detect a flame, and extinguish the fire using the SAMD21J18A (ARM Cortex-M0+) MCU.
- Peripherals included: ultrasonic sensors, H-bridge motor drivers, stepper motors, brushed DC motors, and a fire detection system which utilized an array of IR diodes.

**Embedded Control System Design**, *Student Designer*

**August 2017 – December 2017**

- Wrote drivers for various analog and digital components using GPIO, timer counters, digital filter implementations, PID controllers, interrupts, and I2C. Devices included motors, displays, and I2C controlled devices all in conjunction.

## SPECIALIZED SKILLS

**Equipment:** Soldering (SMD), oscilloscope, function generator, frequency analyzer, programmable electronic loads

**Hardware:** Snapdragon 820, SAMD20J18/21G18 (Cortex-M0+), ATSAM4SD32B (Cortex-M4), Raspberry Pi

**Software:** Crosscore Embedded Studio, Audio Weaver, Allegro PCB Viewer, SIMPLIS/SIMetrix Simulator, LTspice XVII, Mentor Graphics DxDesigner, Linux CLI

**Languages:** C, C++, python, Bash, ARM-Assembly (Cortex-M4), DataNitro (Excel-python)