Nicholas Pianetto

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EDUCATION

Iowa State University, College of Engineering **Expected December 2026**

Bachelor Of Engineering, Computer Engineering

SKILLS

- **Programming Languages**: C, Java, Python, Verilog, VHDL
- **Hardware Tools**: Oscilloscope, Spectrum Analyzer, Soldering Iron (THT, SMT assembly and rework), Desoldering Gun, Multimeter, Variable Power Supply, Logic Analyzer, Arduino, STM32, EPROM Programmer
- **Software**: IntelliJ, Visual Studio Code, QuestaSim, Quartus Prime, Android Studio, Git, Github, PADs Logic, PADs Layout, KiCad, STM32Cube IDE, Perforce, Lattice Diamond, FTDI Programmer (FTProg), SolidWorks, Linux, Zuken

EXPERIENCE

Electrical Engineer Intern - *Vermeer* **May 2026 - Present**

- Designed a cable harness adapter to maintain pin compatibility during adoption of vendor part revision changes.
- Designing a tester for more efficient wire harness testing with CAN bus, controllers, and display modules for verification of pinout with the entire system.

Circuits II Teaching Assistant - *Iowa State* **January 2026 - May 2026**

- Provided constructive feedback for students in the lab with hands-on troubleshooting, equipment use, and circuit synthesis.

Research Assistant - *Iowa State* **May 2025 - May 2026**

- Collaborated with graduate students from the Animal Science department to design a bioimpedance analyzer for animals.
- Independently designed a schematic and board layout based around the ESP32, with working SPI SD data logging and LCD.

Embedded Design Engineer Intern - *Ag Leader Technology* **May 2024 - Dec 2024**

- Revised a serial to fiber optic PCB in PADs Layout and PADs Logic for use during ESD, EMC, and EMI testings.
- Developed a custom in-house inventory management application using Java (with MySQL) and Python (with SQLite), streamlining data handling.
- Collaborated with a team of embedded engineers to design the layout for a passive board in PADs while including proper EMI and ESD preventative design considerations.
- Performed board mods to prototype hardware by soldering experimental shielding and 0402 sized bypass capacitors in an effort to minimize capacitive coupling problems during ESD testing and found a solution to mitigate found issues.
- Independently developed the schematic and board layout for a passive USB-C PCB with impedance matching of all differential pairs to achieve support of DisplayPort functionality for product testing. Initiated and led design review of the schematic and layout.

Computer Museum Volunteer - *Iowa State* **March 2023 - Dec 2024**

- With support from the Director of Cyber Security at Iowa State, I helped with the curation of a computer museum using Iowa State's extensive collection dating back to the first digital computer, the Atanasoff-Berry Computer, from 1937.

PROJECTS

STM32 based ASCII to USB HID Controller

- Independently designed the schematic and layout, programmed, and assembled a custom PCB in KiCad based around the STM32F0 for use as a HID device that adapted a 47 year old 7-bit parallel ASCII keyboard to interface with modern devices.
- Successfully reverse engineered keyboard pinout without datasheets by using a logic analyzer and familiarity of 74LS logic.

PONG On Custom FPGA Development Board With Onboard VGA

- Independently designed (schematics and board layout), fabricated, and programmed a custom FPGA board based around Lattice Semiconductor's MachXO2 7000HC CPLD.
- Implemented support for 2 user-selectable voltage levels across different banks, pin headers for the MachXO2's IO, and 640x480 resolution VGA.
- Developed an FTDI FT2232H based JTAG programmer to interface with my board for easy plug and play development.