

Andrew Courtemanche

<Some information has been redacted; this document is intended to be public> | andrewcourtemanche968@gmail.com

Computer Engineering student with over seven years of programming experience across multiple languages and platforms. Offers a varied skillset backed by both formal education and extensive hobbyist experience. With a strong desire to learn, can quickly adapt to unfamiliar technologies while building on past knowledge. Efficient and capable while working independently, and experience with teamwork in both professional and recreational environments.

Education

University of New Hampshire, Durham NH | *Computer Engineering* | Class of 2022 (Graduating Dec. '22)

Saint John's High School, Shrewsbury MA | *High School Diploma* | Class of 2018

Experience

Crest Technologies, Sterling MA

Summers 2018 - 2021 | Full-time

Responsible for provisioning devices for organizational use. Developed and integrated hardware, software, and processes to increase overall provisioning efficiency. Additional responsibilities included shipping, receiving, repackaging, quality control, and waste management with an emphasis on organization and attention to detail.

Reference: Joe Young - <Contact information redacted>

Projects:

- Modelled and 3D printed custom sliders to reduce hand strain during palletization.
 - 3D printed custom low-cost hex-key screwdrivers to reduce hand strain during packaging.
 - Automated bulk password entry using multiple Arduinos to minimize manual intervention.
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Skills and Knowledge

Languages: C, Assembly (ARM, AVR, MSP430), Verilog HDL, C++, Bash, Java, Rust, Python, Lua

Technical Skills:

Circuit design(NI Multisim), circuit prototyping (soldering/breadboarding), FPGA programming (Xilinx Vivado), microcontroller programming and usage (Atmel AVR, Texas Instruments MSP430), Microsoft Windows, Linux (Debian/Ubuntu/Raspbian), Version Control Systems (Git), CAD software (Solidworks), 3D printing, remote administration software (SSH, FTP/SFTP/SMB, VNC, RDP), emulation/virtualization software (QEMU, VirtualBox), VPN usage (OpenVPN, Wireguard), network routing/security (platform specific), office and collaboration software (Microsoft Office, Google Suite, Zoom, etc.)

Projects

Custom 32x32 RGB display panel:

- Designed and hand-built a 32x32 RGB display capable of displaying 24-bit color images.
- Software capable of displaying images of any original size, including animations.
- Panel controlled remotely, server running on Raspberry Pi displays images/animations submitted by remote client. Server caches images/animations for future re-use.
- Utilized: C, Raspberry Pi, WS2812B addressable LEDs, Socket (TCP) Programming, Soldering.

Electronic Typewriter:

- Reverse-engineered an old electronic typewriter and re-implemented using modern electronics.
- Custom stepper motor driver board, power supply, keyboard demultiplexer, and software.
- Utilized: C, Arduino MEGA, L293D stepper motor drivers, Circuit Design, Soldering.

Personal Server:

- Custom-built server running Ubuntu providing several services used daily, including: a file backup server, development environments, video transcoding, media server, web server, traffic routing, VPN, video game servers, and virtual machines.
- Proxy server hosted "in the cloud" providing a static endpoint for server traffic.
- Utilized: Linux, SSH, Wireguard, Samba, ZFS, Bash, organizational skills.

LoRa Wireless Mesh Senior Project (In-Progress):

- Design and implementation of a self-configuring sensor mesh protocol to facilitate sensor data collection across a large geographical area (tens of km²), dynamic packet routing and automatic failure recovery
- Encrypted data sent to cloud server for collection and processing
- Utilized: C, Arduino, LoRa, GPS