Brady Bolton

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Education Computer Science (Primary), Computational Modelling & Data Analytics (Secondary), *Fall 2021*
Mathematics and Statistics Minors
GPA: 3.64/4.0 (*Magna Cum Laude*)

Languages Python, Golang, JS/CSS/HTML, Java, C/C++, R, MATLAB, LaTeX, Lisp, TypeScript
Skills Linux, React, Django/DRF, Git, Docker/Docker-Compose, Kubernetes, gRPC, proto3
CUDA/MPI/MPICC, BACnet (IP/MSTP)

Related Experience

Software Engineering Intern, NetApp, Summer 2021

- Wrote a containerized full-stack web-app for discovering and managing switch firmware
- Requests routed through Nginx reverse-proxy and Gunicorn WSGI deployed with docker-compose
- Implemented Django + Django-Rest-Framework back-end to handle user requests in parallel using asyncio

Software Engineering Intern, Progeny Systems, Summer 2020

- Worked with microservices in a cloud-native stack implemented in Golang, proto3, and gRPC
- Troubleshooted container networks with `tcpdump`, `smcroute`, and `iptables`
- Migrated a docker-compose setup to Kubernetes using Helm

Software Engineering Co-op, Daikin Applied Americas, Spring 2020 – Summer 2020

- Building automation systems (BAS) integration testing using BACnet IP/MSTP, MODBUS, Webkit
- Used Wireshark and PCAP to investigate networking bugs on BAS systems
- Focused on Python best-practices, development, and documentation using PyTest, Cython, and Sphinx

Undergraduate Research Assistant, Socha Labs, Spring 2019 – Summer 2019

- Responsible for programming and testing servo motor controllers and data-acquisition for robotic fish
- Worked closely with faculty at the Socha Lab of Biomedical Engineering and Mechanics (BEAM) to empirically study bio-mechanical models of fish locomotion and its effect on speed and mechanical efficiency

Projects

RideChariot.app (on-going)

- Uber-like app (PWA) to make ride-sharing quick and easy for Virginia Tech's fraternities
- Front-end in React with static site generation using Next.JS (targeting a Jamstack-inspired architecture)
- Dockerized back-end with a `gofiber` internal API using MongoDB, Amazon SNS, and Traefik load-balancing

My Dog Sends Me Texts (on-going)

- Make-shift capacitive touch pads that my dog presses to send SMS messages to family group-chat
- Runs on an ESP8266 MCU calling Twilio's API from a local WiFi network (via MicroPython)
- Bestow animals a rudimentary vocabulary (e.g. food, treat, water, walk)

CLI Cheatsheet for Aliases

- A Golang ncurses-like tool to parse aliases and spit out an organized cheatsheet on the CLI
- Organize your aliases into categories by including directives in your dot files
- Supports configuration, paging, vim-inspired controls, and on-the-fly reformatting

Ray Tracing with Parallel Computing

- Rendered scenes on VT's compute clusters by simulating light rays via parallel processing
- Implemented with MPI (Message Passing Interface), MPICH, and via Nvidia's CUDA platform using GPUs

Awards and Activities

ACM Programming Team (Fall 2018)
ICPC Team Honorable Mention Award (2018)
Hyperloop at Virginia Tech
Dean's List
Philosophy Club
Virtual Entities (AI Programming)