Gault Bruch

Junior Web Developer

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Personal Summary

I am an ex-research student turned web developer, pulling on my previous years of coding both in an academic and personal sense. I have on-site experience connecting and automating hardware and software packages, with much of my previous work being in Python. During my time learning web development, I have specialized myself mostly in React as a frontend framework, and am working to garner a solid foundation in fullstack development. I am most familiar with the MERN stack, but I believe my previous experience allows for solid adaptation to other stacks and roles as necessary. My web development journey has been a self taught one, but I have attempted to consider the roles and challenges I would face in larger companies into my roadmap. I am always looking forward to new opportunities for learning, and believe personal development is the forefront of professional development.

Technical Background

- Foundational understanding of the MERN stack, having built a project from the ground up from backend to frontend from a self built software requirement sheet.
- Experience building relational (SQL Server) and document based (MongoDB) databases for frontend consumption
- Background in React 16, using both class and functional components.
- Experience building and consuming RESTful APIs
- Understanding of HTML, CSS3, and current JavaScript ES6 practices (This site is built with it!)
- Utilized Figma to build out templates for website designs
- Work experience with computer pairing and hardware automation using a self-built socket server.
- Experience with Python program optimization using GPU computing and LLVM conversion to speed up computational calculations for molecular simulations.
- Experience working with machine learning packages (Tensorflow, PyTorch) as well as building small machine learning projects in Python

Education

Bachelor of Science, Nanoscience Fourth Year (Co-op)

2018 - Present

University of Guelph, Guelph ON

- Specialized in x-ray diffraction techniques and surface analysis
- Worked with Python code on a variety of on-the-job and academic projects
- Collaborated with scientific teams to build and operate new experiments
- Ran an initiative to introduce Arduino projects into laboratories

MITx Online, various courses

2018 - 2021

Computer Science and Programming

2018

Program exploring the fundamentals of computer computation using Python as a guiding language

Quantum Physics I/II

2019-2021

Coursework covering quantum dynamics and perturbation theory, along with common subjects covered in quantum mechanics courses

Stanford Online, Machine Learning

2019

Introductory course to machine learning theory and its applications in real world problems for data set analysis

Work Experience

Canadian Light Source, Student Researcher

January-September 2021

University of Saskatchewan, Saskatoon SK

- Connected hardware and built an interfacing script through computer bank socket interface to allow automation of a cryostream, providing greater automation capabilities for user groups.
- Worked to organize and scan sample sets, as well as automate scanning processes for overnight work using the beamline SPEC coding language.
- Applied scattering theory for x-ray diffraction studies to real world software creation and analysis of powder, crystalline, and amorphous samples
- Worked in on-site lithography and chemical laboratories to build microfluidic devices for use on the Brockhouse Beamline to analyze chemical reactions in real time.

USRA Student Research

Summer 2020

University of Guelph, Guelph ON

- Worked within a research team to develop methods of scattering data analysis for amorphous materials via crystal simulations
- Optimized codebase using CUDA computing to run large simulated optimization on the GPU

Events / Daycamps Lead

2017 - 2019 Summer Seasonal

Town of Okotoks, Okotoks AB

- Lead initiative to build science and engineering-based camps to increase STEM involvement for youth, the structure of which was adopted by other camps in the area.
- Selected by Community Programs Lead to take charge of multiple tasks involving reorganization and updating of facilities and technological equipment
- Worked closely with other departments to update safety procedures, which ensured a smooth and safe transition during an emergency
- Filed, documented, and requested weekly medical forms, parent notes, and attendance sheets
- Worked closely with parents and patrons to resolve issues and concerns

Accomplishments & Achievements

- Founded Arduino Group at the Uniersity of Guelph
- Worked with staff and students in the university to begin a group focused on implementing Arduino modules in student research
- University of Guelph 2018 -2021 School Year Dean's List (Award for >80% average for all classes)