

Luke Charbonneau

SOFTWARE ENGINEER · PRODUCT DEVELOPER

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Summary

Driven software engineer, product developer and graduate of a first-tier optical physics program interested in full stack web development, embedded systems (IoT), scientific tools development and data science. I enjoy writing self-explanatory code to achieve meaningful technical goals that improve the bottom line. I offer freelance coding services in my spare time under the Colorado-registered Castle Scientific LLC.

Work Experience

Crunch Technologies

Boulder, Colorado

HEAD OF PRODUCT DEVELOPMENT

Oct. 2018 - Present

In charge of development and improvement of products at Crunch Technologies, a startup focused on the production and engineering of ultrafast laser systems and related laboratory instruments.

- Lead developer of software applications for use in new ultrafast laser measurement products
- Spearheading design of integrated laboratory laser diagnostic systems
- Leverage extensive hands-on experience with numerous optical components, devices and instruments to build and improve ultrafast laser system components

Photon Kinetics, Inc.

Beaverton, Oregon

MEASUREMENT ENGINEER

Oct. 2017 - Sep. 2018

Played a key role in redesign efforts, software development and production management of optical characterization instruments used in large-scale optical fiber manufacturing facilities worldwide.

- Successfully redesigned fiber-production measurement systems for significantly reduced manufacturing cost and enhanced reliability
- Created and automated production processes to improve product lead times and uniformity
- Supported existing customer systems via remote diagnosis of technical issues
- Performed new hardware design and software development for existing products to fit unique customer needs

Coding Experience

Full Working Proficiency

Python (application development, data analysis)
Visual Basic (application development)
Java (application development)
Django (full-stack web development)
API Design (RESTful APIs)
Git/Github (source control)
Javascript (web apps)
Virtualization (Oracle Virtual Box)

Intermediate Proficiency

C/C++ (embedded systems)
NoSQL/SQL (database management)
Bash (task automation)
Powershell (task automation)
HTML/CSS (web design)
PyTorch (machine learning)
Pandas (data analysis/preparation)

Elementary Proficiency

R (data analysis)
Wolfram (data analysis)
Octave (data analysis)

Additional Skills

- Ability to contribute effectively both as a team member and individual
- Experience writing comprehensive and accessible procedures for non-engineers
- Public speaking/presentation experience
- Pedagogic theory and practice (2 years experience as undergraduate Learning Assistant and graduate Teaching Assistant)
- Trained machinist
- 3D design and printing experience

Education

University of Colorado

Boulder, CO

M.S. (ATOMIC, MOLECULAR AND OPTICAL) PHYSICS AND B.A. PHYSICS

Aug. 2011 - Dec. 2016

- Concurrent BA/MS physics program; Concentration in experimental ultrafast optics
- Master's thesis, "A Simplified Method for the Repetition Rate Stabilization of Modelocked Lasers: A PDH-Based Technique", defended in 2016
- Wrote software in Python to process image data with the objective of detecting subtle changes in reflectivity of specialized optical devices