14530 37TH AVE NE
SEATTLE, WA 98155

Phone (206) 251-0554
E-mail Bradford.Duvall@gmail.com
Homepage: torothin.github.io

Bradford Allan Duvall

Qualifications

Bachelor of Science in Material Science and Engineering, Graduate Certificate in Software Design and Development. (Studied and implemented fundamental concepts of computer science and software development)

Completed projects in C++, Python, Java, JavaScript, NodeJS, and Swift. Used Tkinter, SQLite, PostgreSQL, and Flask to create applications in Python.

As Process Engineer working in multi-disciplinary teams in Aerospace manufacturing, tested and implemented new polymers to ensure customer satisfaction and to reduce manufacturing cost. As Research Engineer in Aerospace manufacturing, implemented new metal alloys and new manufacturing methodologies.

Projects

MT Shadow-Boxing App: Created a web app for vocalizing Thai boxing combinations. Used Bootstrap, CSS, HTML and JavaScript to create random combinations and play audio files to voice the combination. Users have options to adjust timer length, combination length, frequency, and includes pre-created combinations. Requested and incorporated feedback from three early users including a lead instructor.

OOP Group Project: Worked with a partner to design and develop an inventory tracking system using BST for quick sorting and storage of inventory. Used hash tables to store and quickly access customer objects. Designed a class hierarchy to make the inventory extensible for many media types and genres. Used a manager class to manipulate inventory and customer objects.

Multithreading, Sleeping Barber Problem: Extended a single process, single thread sleeping barber problem into a multiple thread, multiple barber problem in C++. Used pthreads and asynchronous communication to implement multiple barbers with no memory leaks and no deadlocks.

Implemented a graph class to calculate shortest paths using Dijkstra's shortest path algorithm which used a 2D array adjacency matrix. Created a depth-first search class which used a list of arrays to calculate shortest path between locations.

Designed and developed a wrapper class around an image processing library for manipulating images and creating fractal patterns using recursion and linked lists.

Education

[2017 - 2018] University of Washington Bothell, WA

Graduate Certificate in Software Design and Development

CS fundamentals: data structures and algorithms, systems programming, and software engineering life cycle and modeling. GPA: 3.5/4.0

[2009 - 2011] University of Washington Seattle, WA

Bachelor of Science Material Science and Engineering

[2006 - 2009] North Seattle Community College Seattle, WA

Associate of Science

Work Experience

[2015 - 2016] B/E Aerospace ALCI Everett, WA

Materials and Process Engineer

- Maintained and updated materials and process specifications. All documents required Boeing approval prior to implementation.
- Developed and authored a repair manual for minor repairs of plastic and composite materials. The repair manual met internal and external (FAA and Boeing) requirements. The approval of the repair manual allowed B/E to save upwards of $50,000 per lavatory by reducing scrap due to minor damage.
- Lead a team of engineers to replace a 3M hook and loop fire retardant product, on a short deadline, due to material being discontinued. The team was able to find a suitable alternative which met FAA and customer requirements.

[2011 - 2015] Exotic Metals Forming Company Kent, WA

Research Engineer I, II

- Analyzed and tested new and current titanium and nickel alloys to determine the formability and applicability for current and future product development. Worked closely with suppliers to reduce cost, material weight, and boost ability to withstand increasing jet engine exhaust temperatures.
- Worked with Finite Element Analysis software firms to determine the capability of FEA modeling and simulation software as it relates to complex forming operations of thin sheet metal.

[2010 - 2011] Modumetal Inc. Seattle, WA

Project Engineer Intern

- Discovered optimal surface treatment of steel substrates prior to Modumetal deposition resulting in improved substrate to deposit interface. Ultimately led to an electroplating system that was more robust in terms of process control.
- Provided electrochemical cell computer modeling for several company programs and parts. Contributed to a key contract project by carrying out electrochemical cell modeling of given parts to predict electrodeposited coating thicknesses.

Interests

Martial Arts, Web Development, Computer Gaming, and Hiking/Camping