ubc science co-op
T: 604.822.9677 | F: 604.822.9676 | science.coop@ubc.ca | www.sciencecoop.ubc.ca

Eugene Y. Q. Shen

2nd year Engineering Physics

Skills

Computer	Electrical	Mechanical	Laboratory	Other
C/C++/Java	Altium PCB design	Statics analysis	Oscilloscope	Shorthand
Python	Soldering	Technical drawings	Multimeter	First aid
Lisp/Scheme	Basic circuit analysis	SolidWorks design	Function generator	Fire extinguisher
JavaScript	Basic circuit debugging	Manual tools:	Analytical balance	Fluent Mandarin
MATLAB	Use of circuit elements:	snips, hole punchers,	Error analysis	
Unix/Linux	resistors, capacitors, etc.	nibblers, rivet guns	Formal lab writeups	

Work Experience

University of British Columbia, Vancouver, Canada — January 2016–April 2016

Undergraduate Teaching Assistant

- Punctually marked over 70 labs every week for an introductory C programming course.
- Created a Python script to automatically display and compile the labs, increasing efficiency by 30%.
- Responsibly invigilated the final exam and responsively responded to questions on an online forum, despite being the only first-year student among mostly graduate teaching assistants.

Technical Projects

UBC Prerequisite Tree (req) — April 2016–Present

- Developed a Python application to generate prerequisite trees for university courses.
- Scripted a Python web crawler to obtain multiple official sources of prerequisite data.
- Designed an algorithm to translate natural language prerequisite statements into a dependency tree.
- Currently working on porting GUI from Tcl/Tk to JavaScript.

Sight Reading Drill Generator (Kanon) — August 2016–Present

- Developed a Python script to generate random musical interval and arbitrary chord reading drills.
- Designed an input structure to customize allowed notes, allowed chords, and clef range limits.
- Developed an Android app to generate random intervals for mobile practice and immediate feedback.
- Persuaded the UBC Chair of Music Theory to use the script for graded quizzes in music classes.
- Currently working on preparing the app for release on Google Play.

Dungeon Crawler Roguelike (ftn) — June 2016–July 2016

- Developed a simple roguelike game in C, with basic item types, inventory management, and AI.
- Designed a general data structure to represent all objects, including items, players, and terrain.
- Currently on hold while researching algorithms to generate random maps.

UBC Orbit Communications Subteam — September 2015–April 2016

- In a subteam of 5, designed in Altium the PCB for the satellite communications system.
- Applied RF equations to determine optimal characteristics for integrated circuit selection.
- Soldered, baked, and debugged PCBs from various other subteams.

Research Experience Program — November 2015–March 2016

- Researched ice nucleation with a partner using scientific journals with guidance from a grad student.
- Gave an engaging poster presentation at the Multidisciplinary Undergraduate Research Conference.

Polytope Visualizer (Tsukiyo) — September 2015–February 2016

- Developed a Python application to display 3D polyhedra and 4D polytopes.
- Used Tkinter, a Tcl/Tk package for Python, to manage the GUI buttons and canvas drawing.
- Parsed Wythoff and Schlafli symbols to create over 60 uniform polyhedra and all regular polytopes.
- Independently discovered all 3D and 4D rotation and camera movement algorithms used.

Volunteer Experience

Canadian Red Cross Society, Vancouver, Canada — August 2014–December 2015

Front Desk Volunteer

- Volunteered at the Vancouver Depot for the Health Equipment Loan Program almost every week.
- Diligently received clients at the front desk for over 200 hours in total.
- Created a standardized inventory labelling system by reorganizing equipment and printing labels.
- Simultaneously keyed in loan data, processed donations, retrieved equipment, and responded to calls.

Guara Hari Karma Free Meals, Vancouver, Canada — July 2014–March 2015

Lunch Server

- Served free vegetarian lunches to the public in a drop-in centre in the Vancouver Eastside.
- Proactively bagged donated bread and gave away perishable donated pastries when available.
- Simultaneously washed dishes, wiped tables, mopped floors, and threw out the trash after lunch.

Learning Buddies Network, Vancouver, Canada — September 2013–April 2014

Math Tutor

- Tutored math to two struggling elementary school students for four months each.
- Created interactive math games and assigned personalized homework exercises.
- Substantially increased their scores between pre-test and post-test.

Education and Awards

University of British Columbia, Vancouver, Canada — September 2015–Present

- Faculty of Applied Science, Second Year Engineering Physics; 93% cumulative GPA.

2nd in Division Two, ACM-ICPC Pacific Northwest Regionals — November 2015

- Used Python and C++ in a team of 3 UBC students for this algorithmic programming competition.

R. A. Pyke Mathematics Memorial Scholarship, Sir Winston Churchill — June 2015

4th in Round One, North American Computational Linguistics Olympiad — March 2015

Associate Diploma for Piano Performance, Royal Conservatory of Music — August 2014

2nd in the Western Division, Canadian Computing Competition — January 2014