

Fred Choi

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Objective

To obtain a summer internship or summer-fall co-op in the field of computer science and/or mathematics.

Education

Rensselaer Polytechnic Institute / Bachelor of Science in Computer Science and Mathematics

May 2020

- **GPA: 4.0**
- Coursework: Introduction to Algorithms, Principles of Software, Probability Theory and Applications, Introduction to Topology, Linear Algebra, Advanced Calculus, Foundations of Computer Science, Computer Organization, Differential Equations, Data Structures

Software

- Expert in: JavaScript, Java, C++, C#, Python
- Experienced with: HTML, CSS
- Versioning: Git/GitHub
- Libraries: jQuery, jQueryUI, Node.js, .NET

Mathematics

- Multivariable Calculus and Optimization
- Linear Algebra
- Formal Proofs (Set Theory, Topology)

Relevant Coursework

Introduction to Algorithms

Fall 2018

- Mathematical tools for designing and analyzing algorithms, and computational complexity.
- Algorithm techniques such as dynamic programming, greedy algorithms, divide-and-conquer, and backtracking.

Principles of Software

Fall 2018

- A study of important concepts in software design, implementation, and testing.
- Programming concepts: specification, abstraction with classes, design principles and patterns, testing, refactoring, GUI and event-driven programming, and cloud-based programming. Assignments and concepts taught are in the framework of Java.

Data Structures

Fall 2017

- Programming concepts: trees, binary search trees, associative structures.
- Algorithms: searching and sorting, generic algorithms, iterative and recursive algorithms. Methods of testing correctness and measuring performance. Assignments and concepts taught are in the framework of C++.

Experience

Interactive JS / Self-Directed

June 2017 - Present

- <http://fred-choi.com/InteractiveJS/docs/examples/>
- InteractiveJS is a set of tools to make dynamic, interactive visualizations of various concepts in mathematics. Written in JavaScript with jQuery, it is embeddable in any webpage, making it ideal for teaching, visualizations, and figures embedded in technical literature. A good geometric intuition is the best way to learn mathematics. Interactive JS aims to bring this to everyone.

CS1 Mentor / RPI

September 2018 - Present

- Tutor and assist students in learning the basics of computer science, including the Python 3.x language, containers (lists, sets, dictionary), functions, classes, and recursion.

Lead Research Assistant / Culturally Situated Design Tools

September 2017 - May 2018

- Create webapps in JavaScript designed to help bring STEM to grade-school students in a relatable and easy to learn manner. Incorporates principles of web design (HTML and CSS), graphic design, game design, and teamwork.