# Gerald F. **Wu**

Computer Science · Applied Mathematics

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## Skills

**Programming:** Java, C, Scala, C++, OCaml, Racket, Python, Processing, Shell scripting
**Web:** JQuery/JavaScript, ASP Classic, PHP, LAMP, HTML/CSS
**Other:** RHCSA Certified Linux Systems Administration, LaTeX, Git

## Education

### Brown University

*Providence, RI*

Major: Computer Science, Applied Math — *2017 - PRESENT*

| | |
|---|---|
| CURRENT | **CS**, Introduction to Systems \| Database Management Systems |
| CURRENT | **Applied Math**, Applied Partial Differential Equations II \| Statistical Inference I |
| 2017-2018 | **CS**, An Integrated Introduction I \| An Integrated Introduction II |
| 2017-2018 | **Applied Math**, Applied Ordinary Differential Equations \| Applied Partial Differential Equations I |
| 2017-2018 | **Math**, Honors Calculus (Multivariable) \| Honors Linear Algebra \| Abstract Algebra |

### Thomas Jefferson High School for Science and Technology

*Alexandria, VA*

High School Education — *2013 - 2017*

- GPA: 4.37 – AP Computer Science with Data Structures, Parallel Computing, Computer Systems Research

## Experience

### Brown University

*Providence, RI*

Applied Mathematics Teaching Assistant — *Sep. 2018 - PRESENT*

- Undergraduate teaching assistant for APMA 0340: Applied Differential Equations II

### FMS Inc.

*McLean, VA*

Software Engineering Intern — *May 2018 - Aug. 2018*

- Cluster analysis in large-scale graphs (C#)
  - Researched, implemented, and **optimized** the **Markov Clustering Algorithm** (MCL) to identify clusters in relational graphs of size **100,000+** nodes and **120,000+** edges in less than **10 minutes**
- Implemented secure, PCI-compliant payment integration on the web using Authorize.Net (ASP Classic)
  - Complete integration with the **Authorize.Net** payment gateway, including both **one-time** payments and long-term customer **payment profiles**

### Smithsonian Institution

*Washington D.C.*

Software Engineering Intern — *Jun. 2016 - Aug. 2016*

- Metadata extraction tool (Java/shell scripts)
  - Reads **metadata** from files in an ingest folder and populates an **Oracle database** with the data
- Metadata ingestion tool (Java)
  - Automatically processes **spreadsheets** within ingest folders and populates **Oracle database**

### Smithsonian Institution

*Washington D.C.*

Software Engineering Intern — *Jun. 2015 - Aug. 2015*

- Two-part data integrity program for Smithsonian Digital Asset Management System
  - Ingests **MD5 checksum** data and writes it to an Oracle database, and **verifies data integrity** at a later date

## Projects

### Quantum Mechanical Wave Function Propagation

*Processing*

github.com/98WuG/QuantumEvolution

- A program to evolve arbitrary initial states through time for the one-dimensional Schrodinger Equation and Wave Equation in the absence of a potential field. Highly optimized to run in **real time**. Accurate to millions of timesteps before noticeable error propagation.

### An Approximate Solution to the Packing Problem

*C++*

github.com/98WuG/SeniorResearch

- An approximate, polynomial time solution to the classic NP-hard packing problem. Implemented using the sorting-first greedy approach to packing.