

# MATTHEW FARRELL

<https://www.linkedin.com/in/matt-farrell/> • <https://www.github.com/farrellm1229>

269 Elkwood Avenue  
New Providence, NJ 07974  
(908) 731-1176

Seattle, WA  
98101  
[matt.farrell1@outlook.com](mailto:matt.farrell1@outlook.com)

## EDUCATION

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**Marist College**, Poughkeepsie, NY  
Bachelor of Science, Computer Science  
Minors: Cybersecurity, IT, IS  
GPA: 3.34

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## RELEVANT EXPERIENCE

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### *Full Stack Client Application*

- Sleep analysis website for a client who wanted to be able to connect their Oura Ring (popular sleep tracking device) with their account.
- Data was then analyzed through a machine learning algorithm to predict trends and return a report to the user.
- **Frontend:** Bootstrap **Backend:** Flask, PostgreSQL, Oura API, Python, Pandas

### *Compiler Design*

- Constructed a compiler in Java that takes in a modified “C” language from an LL1 grammar as input.
- Split into four stages of compilation: lexical analysis, parsing, semantic analysis, and code generation.
- Created token stream, abstract/concrete syntax trees, and symbol table.
- Outputs 6502 opcodes if all stages of compilation passed with 0 errors.
- Code generated was then sent through a custom OS to run the program.

### *Software Development*

- Created a virtual 6502 processor written in TypeScript and running on server side JavaScript in Node.js
- CPU pipeline including fetch, multiple decode/execute, write back, and interrupt handling steps.
- Complete 6502 architecture and instruction set.

### *Database Management*

- Implemented a lost/found database and web frontend using PHP and MySQL.
- Designed a large relational database for a multiplayer video game enterprise.

### *Personal Portfolio Website*

- Created a portfolio website using React.js to provide an introduction of my background, skillset, and aspirations.
- URL: <http://www.farrellfolio.com>

### *Mobile App Online Business*

- Began writing code on jailbroken iPad/Android tablets that allowed me to gain coins (in app currency) of a popular mobile game at an exceptional rate.
  - Turned this abundance of coins into a large social media following and a five-figure business at the age of 14.
- The full story is displayed in detail on my portfolio: (<http://www.farrellfolio.com>).

## TECHNICAL SKILLS

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**Languages:** Proficient in Java, JavaScript, Python, HTML/CSS, and SQL

**Frameworks:** React, Node.js, Flask, Vue.js, Bootstrap, Wordpress

**Tools/Libraries:** Git, VS Code, Docker, Pandas, NumPy, Matplotlib

**Methodologies:** SCRUM, Agile, Data Analysis, Algorithm Design, Complexity Analysis, OOP