

# Aiden Cullo

✉ aidencullo@gmail.com | 🌐 aidencullo | 📄 aidencullo | 🌐 aidencullo.com | 📞 845-320-0566 | 📍 New York, NY

## EXPERIENCE

**Life From Water** — Lead Software Engineer Sep 2025—

- Developed a **UI** to monitor live well sites across Egypt, giving administrators real-time site quality metrics.
- Constructed a backend server to process registration of new water supply sites, facilitating expansion to more locales.
- Orchestrated application deployment onto **AWS EC2** machines using **Terraform** modules and **Docker** containers.

**JPMorgan Chase** — Software Engineer II Sep 2024—Mar 2025

- Built a dashboard capable of visualizing 1k+ **LLMs**, allowing data scientists to monitor **ML** workflows.
- Augmented **FastAPI** logs with user IDs across all endpoints, ensuring traceability of 1M+ daily events.
- Validated client identities accessing **LLM** artifact registry, enhancing security and guaranteeing government compliance.
- Watermarked automated reports for non-compliant **LLM** projects to prevent unauthorized sharing to external parties.

**HeroGrow** — Software Engineer I Apr 2023—Sep 2024

- Developed a **Ruby on Rails** REST API to manage venue seating layouts, allowing real-time ticket reservations.
- Integrated **JavaScript** Turbo Frames into the browser UI, allowing partial page updates, reducing load times by 50%.
- Implemented OAuth2-based authentication, streamlining sign-in processes and increasing user registrations.
- Integrated Square payments API into the customer checkout form, allowing customers to pay quickly and efficiently.

**Tradigro** — Software Engineer I Dec 2022—Apr 2023

- Indexed **Vue.js** journals, trades, and achievements views, allowing more granular and searchable public content.
- Decoupled raw trade and statistical analysis modules, reducing duplicate feed publications upon user profile updates.
- Standardized text encoding format in **Vuex** frontend data store, eliminating incorrect comment representations.
- Refactored the data upload protocol, serializing I/O on trade files, preventing information loss from race conditions.

**SuperCerebros** — Junior Software Engineer May 2021—Dec 2022

- Built a progressive web application in **React**, deployed to 10k+ domestic and international users.
- Integrated mobile and desktop applications via Ionic SDK and **TypeScript**, cutting total server requests in half.
- Architected DBMS with **Google Firebase**, storing 1TB of user data while maintaining ms latency.

**SUNY Binghamton** — Research Assistant Aug 2018—Nov 2020

- Tuned evolutionary search algorithm for nanocrystal structures in **C** to obtain stabler ground states 90% of the time.
- Achieved 50% speedup of the open source **MAISE** library via parallelization with **OpenMP** toolkit.
- Automated neural network training with **Bash** scripts, reducing the iteration cycle from 100 to 20 hours.

**Caltech** — Physics Fellow Jun 2019—Aug 2019

- Performed scanning tunneling microscopy of topological defects in  $(BiSb)_2Te_3$ -bi-layer topological insulator substrates.

**Sapienza University of Rome** — Software Engineer Intern Jun 2018—Aug 2018

- Built a multi-layer convolutional neural network in **Python**, classifying particle collisions with 99.5% accuracy.
- Generated 20k training samples based on weakly interacting massive particle (WIMP) theoretical models.

## PROJECTS

**pipenv** — Contributor Dec 2023—Feb 2024

- Migrated Click library to Rich and argparse tooling, reducing the package size by 1MB and cutting vendor dependencies.

## SKILLS

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|-------------------------------|--|
| <b>Programming Languages:</b> | Python, JavaScript, TypeScript, C++, C, Java, Ruby, SQL, Go, Haskell, PHP, Rust, Swift   |
| <b>Web:</b>                   | React, Vue.js, Angular, Node.js, Ruby on Rails, FastAPI, Flask, Django, Next.js, Express, Dart   |
| <b>Databases:</b>             | PostgreSQL, MySQL, SQLite, Firebase, Redis, Cassandra, Oracle, DynamoDB, MongoDB   |
| <b>Tools:</b>                 | Git, Docker, Kubernetes, Jenkins, Apache, Nginx, AWS, Azure, GCP, Heroku, Netlify, Vercel  |
| <b>Spoken Languages:</b>      | English ( <i>native</i> ), Spanish ( <i>fluent</i> ), French ( <i>proficient</i> ), Portuguese ( <i>basic</i> ), Mandarin ( <i>basic</i> ) |

## EDUCATION

**SUNY Binghamton** Class of 2020

- BS Computer Science, *Watson School of Engineering*
- BS Mathematics, *Harpur College of Arts and Sciences*
- BS Applied Physics, *Harpur College of Arts and Sciences*