Taj Gillin

taj_gillin@brown.edu ● San Diego, CA; Providence, RI

EDUCATION

Brown University | Providence, RI | May 2026 **GPA: 4.0**

Physics, Biological Track (ScB); Applied Math-Computer Science (ScB)

Coursework: Deep Learning; Prescriptive Analytics; Parallel Computing; Probability, Optimizations, and Stochastic Calculus

- Defenseman for club ice hockey, Brown Design Workshop monitor, aspiring salsa dancer

PROFESSIONAL EXPERIENCE

CMS Experiment Research at CERN **May 2024 - Present**

Undergraduate Researcher *Providence, RI*

- Developing modern jet classification techniques using graph networks on e^+e^- LEP data for future application to the FCC project
- Collaborated with researchers at CERN to create reproducible and readable code and results summarized in upcoming publication

Five Rings **Jun 2025 - Aug 2025**

Quantitative Trading Intern *New York, NY*

- Used rigorous quantitative and data analysis skills to complete a research and development project
- Participated in mock trading to obtain familiarity with how the market operates at the level of individual orders
- Competed in an automated trading strategy and design competition
- Received classroom-style instruction on a wide range of financial concepts and daily mentorship from full-time Quantitative Traders

Brown University Computer Science **Jan 2024 - Dec 2024**

Teaching Assistant *Providence, RI*

- Developed curriculum and assignments for a new course, Foundations in AI (CSCI0410/1411), alongside professors and TAs
- Taught and helped undergraduate and graduate students build a strong conceptual understanding of difficult topics in Foundations of AI and Deep Learning (1470/2470) and gained fluency and a strong understanding of taught content

Architect Therapeutics **Jun 2024 - Present**

Software Engineer *San Diego, CA; Remote*

- Drove computational research to accelerate chemical compound discovery and optimization for emerging pharmaceutical innovations
- Developed sophisticated computational algorithms for hit discovery and lead optimization, leveraging computer-aided drug design (CADD) and advanced statistical methodologies
- Designed and implemented a web-based computational management platform that streamlines job scheduling, computation tracking, and results visualization, enhancing team productivity and research workflow efficiency

Singh Lab Research **May 2024 - November 2024**

Undergraduate Researcher *Providence, RI*

- Explored novel strategies for identifying drug-drug interactions using LLM approaches through systematic experiments with machine learning techniques, including fine-tuning, retrieval-augmented generation, knowledge graphs, and graph network analysis
- Developed robust data extraction and sanitization protocols, utilizing techniques such as web scraping with Puppeteer to aggregate and process complex research datasets

Artificial Teaching Assistant (ATA) **Jan 2024 - Present**

Founder *Providence, RI*

- Conceived and developed a course-specific large language model assistant designed to provide nuanced, conceptual student guidance
- Successfully implemented the AI teaching tool across three Brown University courses, collaborating closely with professors in educational research and human-computer interaction
- Recognized with the Best Use of AI in Education award and Hazeltine Grant for innovative educational technology development

PROGRAMMING | taj-gillin.github.io

Knowledge

- **Languages**: Python, JS/TS, C++ (Advanced), C, Java, Go (Intermediate), Pyret, Racket (Basic)
- **Frameworks**: Web: React, Next, FastAPI, Django | ML: PyTorch, TensorFlow (Advanced), Jax (Basic)
- **DevOps**: Docker, Unix, Shell Scripting
- **Databases**: MongoDB, Redis, SQL (MySQL, Postgres)
- **Fields**: Deep Learning, Machine Learning (Advanced), Reinforcement Learning, Parallel Computing (Intermediate)

Projects

- Internal Website for Architect: Full stack website for data management and task distribution on a computing cluster. Used React, TS (frontend), MongoDB, FastAPI Celery (backend and task deployment), Docker, shell (VM management)
- LIGAND: Generative adversarial network for gRNA design (CRISPR), designed and tested networks with TensorFlow
- Illuminate: Generate animated education videos from any text input. Winner of Hack@Brown Best Use of Gen AI. Used CreateReactApp + FastAPI, LangChain, Manim, AWS

OTHER

Medicine: Nationally Certified EMT-B; OSHA, HIPAA, BLS, ACLS certified

Interests: guitar, reading, photography, puzzles, Legos, ice hockey, lacrosse, snow skiing