Stephanie Olaiya

Phone: (518) 331-3700 | E-Mail:stephanie_olaiya@brown.edu |
Github: https://github.com/stephanieolaiya
Website: https://stephanieolaiya.github.io/

EDUCATION

Brown University, 4.00/4.00 GPA — Providence, RI
Bachelor of Science in Neuroscience with Honors (with focus on Computational Methods) — Graduated May 2023
Brown University, 4.00/4.00 GPA — Providence, RI
Masters of Science in Computer Science (Artificial Intelligence/Machine Learning Track) — **Expected Graduation May 2025**
Relevant Courses: Computational Linguistics, Advanced Software Engineering, Design and Implementation of Programming Languages, Data Science, Cybersecurity and Policy, Computational Cognitive Neuroscience, Program Design with Data Structures and Algorithms, Computing Foundations: Data, Statistical Methods, Organic and Inorganic Chemistry, Physics I & II
Honors: Sigma Xi Nomination (The Scientific Research Honor Society)

TECHNICAL SKILLS

- **Full-Stack Development:** Flask, HTML/Javascript: NextJS, React, GraphQL, Typescript, Material UI, Tailwind CSS, D3.js, NodeJS, Jest, REST APIs, Java, Spark
- **Machine Learning / AI / Statistics:** Pytorch, Tensorflow, Numpy, Pandas, scikit-learn, MATLAB, R programming language, Experience with training, fine-tuning, and evaluating large language models (LLMs) and computer vision models. Experience with using OpenAI API and Hugging Face models and libraries.
- **Databases**: PostgreSQL, SQL, and Database ORMs such as Prisma
- **UI Design:** Figma
- **DevOps:** Git, GitHub, Docker
- Knowledge about data and privacy policies

EMPLOYMENT

Bioinformatics Software Engineer — New York (July 2023- August 2024)
Ma'ayan Laboratory of Computational Systems Biology, Icahn School of Medicine at Mount Sinai

- Developed and maintained a gene set management and analysis web application, and 2 associated PubMed Chrome extensions as the lead software engineer (https://genesetcart.cfde.cloud/)
- Developed and maintained the submission system feature of the Common Fund Data Ecosystem (CFDE) portal (https://data.cfde.cloud/submit) that manages the upload of large datasets and implemented user roles and restrictions
- Incorporated large language models into web applications, and bioinformatics workflows and created personalized bioinformatics artificial intelligence (AI) chatbots
- Conducted research and performed data analysis to analyze large multi-omics datasets using machine learning methods for 3 collaborators
- Created 4 tutorial videos and materials for a bioinformatics masters course on API creation and LLM integration topics

Undergraduate Computational Neuroscience Research Assistant — Providence, RI (May 2022- May 2023)
Computer Vision Research Assistant in Serre Lab, Brown University

- Evaluated the adversarial robustness of 16 Pytorch, Keras, and Tensorflow traditional deep neural network models of image classification and models that are better aligned with human vision
- Completed honors thesis on the topic: Adversarial and Real World Image Robustness of Computer Vision Models (under the supervision of Dr. Thomas Serre)
- Gained technical knowledge on popular AI model architectures and their various applications: RNNs, CNNs, etc

MIT Summer Research Program (Center for Brain, Minds and Machines) — Cambridge, MA (May 2022- August 2022)
Research Intern in DiCarlo Lab of Computational Neuroscience, MIT

- Created 2 experimental benchmark/toolkits on the Brainscore platform (https://www.brain-score.org) that analyze the similarities between the responses of computer vision models to contrast and luminance changes and adversarial attacks and neural data
- Evaluated popular image classification models on these metrics and published a study with the results in a NeurIPS paper

PROJECTS

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- **Accessibility Evaluator (AccUI) - Frontend Lead** (React Typescript, Node.js, OpenAI, Jest)
  - Designed and implemented React Typescript frontend of a project that flags W3C accessibility violations in a developer's codebase for a given project. (https://accui.cs.brown.edu/)
  - Worked with the backend team on NodeJS backend to provide users with LLM-generated code fixes for flagged problems that use the user's code base as context
  - Gained experience with prompt engineering and large-scale software development in a team of 8
- **Bibliographie -In-progress personal project (**Flask, ReactJS, PostgreSQL, HuggingFace, Pytorch)
  - Designed and developed a personal book management web application to search for books, add them to personalized libraries, rate out of 5 stars, and save a review/note.
  - Fine-tuning pre-trained Huggingface BERT model to predict music genre based on book description
  - Gained experience with Google APIs, PostgreSQL database integration
- **Course Registration/Waitlisting Web Application** (React, Java, Spark, Firebase)
  - In a team of 4, created a React Typescript web app similar to the official Brown University course management app (cab@brown.edu) that allows students to sign in, register for courses and add themselves to a course waitlist for instructor approval.
  - Implemented an algorithm that allows instructors to rank students based on specified criteria, such that instructors can prioritize students who have preferred factors such as high semester level for easy approval.
  - Created over 20 REST APIs and database triggers in Java for NoSQL Firebase Database, and Java backend development
- Neural machine translation model that performs German to English translations implemented using the transformer encoder-decoder architecture
- Manually trained and fine-tuned BERT models to perform sentiment classification and question answering in Pytorch and evaluated their performance
- LDA topic modeling analyzing the content of news articles from different sources across the US

PUBLICATIONS

Olaiya, Stephanie O., "Adversarial and Real World Image Robustness of Computer Vision Models With Better Human Visual Strategy Alignment" (2023). Neuroscience Theses and Dissertations. Brown Digital Repository. Brown University Library. https://repository.library.brown.edu/studio/item/bdr:mw5ra9fe/

Olaiya, S., Marques, T., & DiCarlo, J. J. (2022). Measuring the Alignment of ANNs and Primate V1 on Luminance and Contrast Response Characteristics. SVRHM 2022 Workshop @ NeurIPS. Retrieved from https://openreview.net/forum?id=XTPfeOoZD8

Linsley, D., Feng, P., Boissin, T., Ashok, A. K., Fel, T., Olaiya, S., & Serre, T. (2023). Adversarial alignment: Breaking the trade-off between the strength of an attack and its relevance to human perception. arXiv [Cs.CV]. Retrieved from http://arxiv.org/abs/2306.03229

Cirincione, A., Verrier, R., Bic, A., Olaiya, S., DiCarlo, J. J., Udeigwe, L., & Marques, T. (2022). Implementing Divisive Normalization in CNNs Improves Robustness to Common Image Corruptions. SVRHM 2022 Workshop @ NeurIPS. Retrieved from https://openreview.net/forum?id=KAAbo44qhJV

Petzschner, F., Paliwal, S., Paolini, G., Olaiya, S., Zimmerman, C., Zahnd, N., … Stephan, K. (01 2023). Illusion of control differentially affects outcome predictions in pathological and recreational gamblers. doi:10.32470/CCN.2023.1189-0

ADDITIONAL SKILLS & INTERESTS

Language: English (Native), French (A2 Level)
Interests: Machine Learning Research Engineering, Full-Stack Software Development, Artificial Intelligence, Computer Vision, Natural Language Processing, Computational Neuroscience, Bioinformatics, Digital Art, Creative Writing