Stephanie Olaiya

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Github: https://github.com/stephanieolaiya

EDUCATION

Brown University, 4.00/4.00 GPA — Providence, RI
Bachelor of Science Neuroscience with Honors (with focus on Computational Methods) — Graduated May 2023
Brown University, — Providence, RI
Masters of Science in Computer Science (Software Principles 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

TECHNICAL SKILLS

- Proficiency in the following programming languages and frameworks:
  - Python: Pytorch, Tensorflow, Numpy, Pandas, Flask
  - Software Development: HTML/Javascript: NextJS, React, GraphQL, Typescript, Material UI, Tailwind CSS, D3.js, NodeJS, Jest, REST APIs
  - Java
  - MATLAB programming language
  - R programming language
  - PostgreSQL, SQL and Database ORMs such as Prisma
  - Figma
- Tools & Technologies: Git, GitHub, Docker
- Knowledge of the software development cycle
- Experience with computer vision and large language models (LLMs)
- Natural Language Processing (NLP)
- 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 its associated chrome extension as the lead software engineer (https://genesetcart.cfde.cloud/)
- Worked with a team to develop and maintain the submission system of the new Common Fund Data Ecosystem (CFDE) portal (https://data.cfde.cloud/submit) that manages the upload of large datasets
- Incorporated large language models into web applications, bioinformatics workflows and created personalized bioinformatics AI chatbots
- Conduct research and perform data analysis for collaborators on biological data using machine learning methods e.g differential gene expression
- Applied machine learning methods to analyze large multi omics datasets for 3 collaborators

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

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

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PROJECTS

- **Accessibility Evaluator (AccUI) - Frontend Lead**
  - React Typescript frontend and NodeJS backend project that flags W3C accessibility violations in developer's codebase for a given project. (https://accui.cs.brown.edu/)
  - Provides a user 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
- **Bibliographie** (In-progress personal project)
  - Personal book management web application that allows users to search for books and add them to personalized libraries, rate out of 5 stars and save a review/note.
  - Developed with Flask backend and ReactJS frontend
  - Gained experience with Google APIs to retrieve book data and to create book search based on free text, web development.
- **Course Registration/Waitlisting Web Application**
  - In a team of 4, created a React web app similar to the official Brown 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 that have factors such as high semester level for easy approval.
  - Gained experience with NoSQL Firebase Database, React Typescript and Java backend development
- Neural machine translation model that performs German to English translations implemented using the transformer encoder-decoder architecture
- LDA topic modeling analyzing the content of news articles from different sources across the US
- Manually trained and fine tuned models to perform sentiment classification and questions answering in Pytorch and evaluated their performance

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: Full-Stack Software Development, Artificial Intelligence, Computational Vision, Computational Neuroscience, Digital Art, Creative Writing