Andrew Cheung

(+1) 718-668-5792 | AndrewM.Cheung1@gmail.com | Portfolio | LinkedIn: andrewcheungny | Github: acheung-1 | U.S. Citizen

Education

Stony Brook University 2022 - 2024
M.S. in Applied Mathematics and Statistics 3.8 GPA
Relevant Coursework: Analysis of Algorithms, Computational Biology, Computational Geometry, Natural Language Processing, Big Data Systems, Algorithms and Networks, Principles of Parallel Computing, Statistical Learning

Cornell University 2015 - 2019
B.S. in Biological Engineering 3.8 GPA

Technical Skills

Languages: Python, C++, C, JavaScript, TypeScript, MATLAB, M, C#, SQL, R, HTML, CSS
Frameworks: Flask, React.js, Express.js
Tools: Git, VS Code, REST API, MongoDB, Docker

Experience

Epic Systems July 2024 – Present
Technical Solutions Engineer *Madison, WI*
- Develop M scripts, troubleshoot software, and implement code fixes to enhance system reliability and user experience
- Boost feature adoption by analyzing system usage trends, increasing engagement and utility by 350%
- Lead teams of 10+ analysts to define strategic objectives and drive initiatives impacting over one million users

Stony Brook University August 2022 – May 2024
Research Assistant *Stony Brook, NY*
- Simulated protein folding and analyzed molecular configurations of drug candidates using Molecular Dynamics
- Performed computational analysis on single-cell RNA-seq data to classify cell subpopulations

Rockefeller University August 2019 – August 2022
Research Assistant *New York, NY*
- Engineered the Powassan virus genome using computational algorithms to increase susceptibility to immune response
- Evaluated the safety and efficacy of vaccine candidates in a mouse model and modeled viral kinetics

Projects

League of Legends Draft Prediction | *Python, TensorFlow, Flask* Github
- Developed a transformer model trained on 45,000+ matches using Riot's API to generate winning team compositions
- Designed a binary classification model to predict match outcomes based on champion team compositions

Mental Health ChatBot | *Python, TensorFlow* Github
- Fine-tuned three Llama 2 models on 1000+ conversations sourced from online counseling platforms, synthetic mental health conversations, and Reddit communities to improve response generation for mental health support
- Evaluated fine-tuned and baseline model responses using BLEU score against unseen professional counseling data
- Developed a web scraper to collect and preprocess mental health-related text from Reddit communities

Moments | *JavaScript, React, Express.js, Node.js, MongoDB* Github
- Built a social networking platform supporting user registration, customizable profiles, and real-time social interaction

Polygonal Face Detection and Graph Analysis | *Python* Github
- Analyzed user-drawn line segments to classify geometric structures as closed polygonal faces or disjoint acyclic graphs
- Implemented a self-balancing tree data structure to maintain and query line segments for intersection detection

Publications

1) **Cheung A**...Rice CM, MacDonald MR, Hoffmann HH. (2023). Characterization of live-attenuated Powassan virus vaccine candidates identifies an efficacious prime-boost strategy for mitigating Powassan virus disease in a murine model. *Vaccines* 11(3), 612.
2) Rosain J...**Cheung A**...et al. (2023). Human IRF1 governs macrophagic IFN-γ immunity to mycobacteria. *Cell* 186(3), 621-645.