Andrew Cheung

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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, MATLAB, C, C++, JavaScript, TypeScript, SQL, M, R
Front-End & Back-End: HTML, CSS, Flask, MongoDB, React.js, Express.js, Node.js, Git, REST API

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 set strategic goals and execute initiatives impacting over one million users

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

Rockefeller University August 2019 – August 2022
Research Assistant *New York, NY*
- Engineered Powassan virus genome using computational algorithms to enhance immune response susceptibility
- 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
- Used Riot's API to generate winning team comps using a transformer model trained on 45,000+ matches
- Designed a binary classification model to predict match outcomes based on champion team compositions

Mental Health ChatBot | *Python, TensorFlow* Github
- Trained three Llama 2 models on 1000+ conversations collected from online counseling platforms, synthetic mental health conversations, and Reddit communities to improve response quality as a mental health assistant
- Evaluated responses from the fine-tuned and vanilla models using BLEU score on unseen professional responses
- Created a web scraper to collect and preprocess mental health-related text data from Reddit communities

Moments | *JavaScript, Express.js, Node.js, React, MongoDB* Github
- Built a social network website with account creation features supporting personalized profiles and social interaction

Bentley-Ottmann Sweep | *Python* Github
- Analyzed user-drawn line segments to classify geometric structures as closed polygonal faces or disjoint acyclic graphs
- Designed a self-balancing tree data structure to manage the collection of segments for detection of intersections

Publications

Cheung A...MacDonald, M.R., 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.
Rosain J...**Cheung A**...et al. (2023). Human IRF1 governs macrophagic IFN-γ immunity to mycobacteria. *Cell* 186(3), 621-645.