Andrew Cheung

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Education

Stony Brook University | M.S. in Applied Mathematics and Statistics — 3.8 GPA *2022 - 2024*

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 | B.S. in Biological Engineering — 3.8 GPA *2015 - 2019*

Skills

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

Work Experience

Epic Systems | Madison, WI *July 2024 – Present*

Technical Solutions Engineer

- Diagnose and resolve software issues by developing custom scripts in M, analyzing source code, utilizing internal debugging tools, and implementing effective workarounds and code fixes
- Enhance end-user experience by designing, developing, and advocating for system enhancements that increase usability and streamline workflows for clients
- Lead teams of 10+ analysts to identify organizational goals and execute strategic improvements, impacting over a million users
- Collaborate with cross-functional teams to communicate technical challenges, prioritize tasks, and deliver timely resolutions

Stony Brook University | Stony Brook, NY *Aug. 2022 – May 2024*

Rotation Student

- Conducted atomic-level modeling of biological molecules using Molecular Dynamics, Monte Carlo, and Docking (DOCK) in C++
- Applied predictive modeling to identify early-stage cancer cells using protein/gene expression and spatial positioning data

Rockefeller University | New York City, NY *Aug. 2019 – Aug. 2022*

Research Assistant – PI: Charles Rice, PhD

- Engineered a modified Powassan virus genome using computational algorithms to increase susceptibility to immune defenses
- Evaluated the safety and efficacy of vaccine candidates in a mouse model and modeled viral kinetics in vivo and in vitro

Projects

Moments | Github

- Built a social network website leveraging JavaScript with React.js for the front-end, Node.js with Express.js for the back-end, and MongoDB Atlas for secure storage of user profiles and post data
- Developed user account registration features, allowing personalized profile creation and enabling interaction with content through posting, viewing, and liking.

Mental Health ChatBot | Github

- Fine-tuned three separate Llama 2 models on data from online counseling platforms, synthetic mental health conversations, and Reddit communities to enhance response quality as a mental health assistant
- Evaluated the quality of 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

Bentley-Ottmann Sweep | Github

- Implemented an algorithm to analyze user-drawn line segments and determine whether they form a face or a forest of trees
- Designed a self-balancing tree data structure to store vertices for optimal performance in detecting 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.