

Andrew Cheung

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Education

Stony Brook University

Stony Brook, New York

PURSuing PhD in APPLIED MATHEMATICS AND STATISTICS

2022 - Present

- Relevant Coursework: Analysis of Algorithms; Statistical Learning; Computational Biology (algorithmic string matching); Principles of Parallel Computing (Fall 2023); Big Data Systems, Algorithms and Networks (Fall 2023)
- Working towards an Advanced Graduate Certificate in Data and Computational Science
- GPA: 3.8

Cornell University

Ithaca, New York

B.S. IN BIOLOGICAL ENGINEERING

2015 - 2019

- GPA: 3.8

Technical Skills

Languages: Python, Matlab, JavaScript, R, C/C++

Front-End & Back-End: HTML, CSS, MongoDB, React.js, Express.js, Node.js, Git, REST API

Projects

Moments

[Github](#)

- Developed a dynamic 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
- Enabled users to create personalized profiles and engage with content from other users, including the ability to post, view, and like content

Retro Doodle Jump Game

[Github](#)

- Created an intuitive graphical user interface (GUI) utilizing the Time and Tkinter libraries in Python
- Designed an infinite level climber game, incorporating enemy characters, power-ups, and an updating scoring system

String Matching

[Github](#)

- Employed advanced data structures, including the suffix array, Burrow-Wheeler Transform (BWT), and FM-Index, to preprocess a lengthy text
- Implemented an efficient solution enabling rapid searches for short patterns in time proportional to pattern length

Viral Genome Recoder

[Github](#)

- Devised an algorithm to strategically weaken viruses by modifying their viral genomes to promote a heightened immune response

Work Experience

Stony Brook University

Stony Brook, NY

TEACHING ASSISTANT

Aug. 2022 - Present

- Mathematical Biology – Guided 60+ students through workshops on population dynamics and gene-regulatory network modeling using Matlab
- Applied Calculus I – Engaged with 120+ students through interactive in-class calculus exercises and dedicated office hours

Rockefeller University

New York City, NY

RESEARCH ASSISTANT – PI: CHARLES RICE, PhD

Aug. 2019 - Aug. 2022

- Engineered a panel of twelve vaccine candidates for Powassan virus and conducted in vitro evaluations using cell culture assays
- Evaluated the safety and efficacy of vaccine candidates in a rigorous mouse model and assessed the triggered immune response

Cornell University

Ithaca, NY

RESEARCH ASSISTANT – PI: ZHENGLONG GU, PhD

Jun. 2017 - May 2019

- Investigated the significance of mitochondrial DNA damage to neurodegenerative diseases in several thousand patient samples
- Optimized high-throughput sequencing to extract mitochondrial DNA from total genomic DNA

Publications

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