Hanqing (Hannah) Huang

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Education

University of Michigan, Ann Arbor, MI May 2021

Bachelor of Science in Computer Science & Life Science Informatics

- GPA: 3.92/4.00
- Relevant Coursework: Data Structure and Algorithm, Web Systems, Computer Organization, Quantitative Research Methods, Applied Statistical Methods, Bioinformatics and Computational Biology, Linear Algebra, Genetics, Organic Chemistry, Perspectives on Healthcare, Medical Imaging

Skills

- Programming Languages: C++, C, Python, HTML, CSS, SQL, JavaScript, R
- Tools: Git, Command Line, Valgrind, Perf, Bootstrap, Gdb, Pdb, Matplotlib, NumPy, Pysynth, LaTeX
- Others: Fluent in Mandarin and English

Projects

Pokemon Path Finder - C++

- Designed and built path finder that calculates least distance path to catch all Pokemons on map from scratch, exploring best time and space complexity by implementing and designing multiple algorithms and heuristics
- Implemented Minimum spanning tree with Prims and Krustkal's algorithm; Redesigned the algorithm to speed up the program by utilizing nearest insertion heuristic and branch and bound pruning methods to find optimal solution
- Applied optimization techniques by organizing code into classes and inlining functions to avoid code duplication; used Linux tool Valgrind to check for memory leak and Perf to identify code inefficiency
- Utilized GetOpt to parse long command line arguments and handle mode selection based on user input

Creative AI - Lyrics and Music Generator - Python

- Led team of four to develop lyrics and music generator using machine learning techniques from natural language processing; training unigram, bigram, and trigram models on the Beatles lyrics and GameCube music library
- Utilized Pysynth to tune and add background beats to generated music; visualized and displayed music by generating graphs plotting pitch and duration of each note using Matplotlib
- Scrapped and processed music data from online libraries, converting data from midi to ascii to Pysynth
- Used GitHub as version control to merge contributions between members, resolving code conflicts, and building on existing code; learned to be responsible and creative in a team setting

Experience

MI-Pitch Club, Michigan Medicine, Ann Arbor, MI Feb 2019 – Present

Stroke Alert Project Assistant

- Pitched Stroke Alert, a mobile stroke symptom diagnosis application potentially impacting 800,000 patients in US annually using machine learning principals by utilizing Google and IBM Watson APIs; suggested possible features include background facial paralysis detection embedded in smart phone operating systems
- Conducted primary market research by interviewing patients, emergency room and cardiovascular caregivers on needs for quicker foolproof stroke diagnosis to evaluate potential market and develop business model targeting high-risk groups and creating cost benefits for hospital systems, insurance and technology companies
- Collaborated with doctors, engineers, and businessmen to brainstorm solutions to real-life medical problems that improves efficiency and lowers cost by bringing fresh perspective on Chinese healthcare system

Leadership

Central Student Government, University of Michigan, Ann Arbor, MI Sept 2017 - Present

Committee Member - Student Organization Funding Committee

- Assessed funding application of over $2,000,000 in request from over 250 student organizations
- Allocated over $700,000 of funds supporting the multi-faceted campus with an unbiased perspective to maximize campus diversity, minority representation and student activity involvements
- Boosted transparency by remodeling the funding criteria, funding flowchart, and funding application