Hengjin Zhu

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Education

Carnegie Mellon University, Pittsburgh, PA — Expected Graduation: May 2027

B.S. in Information Systems; Addtional Major in Computer Science; Minor in Architecural Design

- **Related Coursework:** Imperative Computation, Functional Programming, Machine Learning, Multivariate Calculus, Linear Algebra, Discrete Mathematics, Probability Theory (GPA: 3.75/4.0)

Experience

Data Analysis Intern, Nanjing Golden Chemical – Nanjing, China — Jul - Aug 2024

- Conducted exploratory data analysis (EDA) on product sales data using Pandas (Python), including time-series analysis to identify trends and seasonal patterns.
- Visualized the analysis results using Matplotlib to effectively communicate findings.
- Tools Used: Python, Jupyter Notebook, NumPy, pandas, Matplotlib

Awards and Honors

National First Prize, Nanjing & Shanghai, China — Spring 2021

First Tech Challenge, Robot Programmer

- Programmed the robot to respond accurately to the controller and operate autonomously during the unmanned phase, ensuring the successful completion of assigned tasks.
- Tools Used: Java, Android Studio

Dean's List, Carnegie Mellon University — Fall 2023

Projects

Interactive Logic Circuit Simulator, Carnegie Mellon University — May 2024

github.com/ZhuHengjin/logic-circuit-simulator

- Developed an interactive graphical logic circuit simulator supporting drag-and-click operations. Utilized a doubly linked list data structure to model and simulate logic gates in both parallel and series configurations.
- Tools Used: Python, CMU Graphics

C0 Virtual Machine, Carnegie Mellon University — Nov 2024

- Implemented a virtual machine for executing C0 (CMU teaching language) bytecode, with functionalities including a stack-based architecture for operand manipulation and control flow instructions. Supporting for local variable management and memory allocation. Integrated function invocation with a dynamic call stack.
- Tools Used: C, C0

Algorithms and Data-Structure Projects, Carnegie Mellon University — Sep - Nov 2024

- Text Editor: Developed a text editor using gap buffer and doubly linked list data-structure to optimize text editing operations such as insertion, deletion, and cursor movement.
- Huffman Compression: Built a Huffman compression tool to efficiently encode and decode data, achieving optimized prefix-free encoding using Huffman trees.
- Peg Solitaire Solver: Implemented an backtracking algorithm focusing on optimizing code by memorizing unsolvable boards.
- Tools Used: C

Technical Skills

Languages: C, Java, Python, JavaScript, Standard ML, LaTeX

Developing Tools: VS Code, Git, React, Jupyter Notebook, NumPy, pandas, Matpolitlib, seaborn