Michelle Yi Xuan Guo

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Education

Carnegie Mellon University, Pittsburgh, PA — Expected Graduation: May 2027
B.S. in Information Systems [Additional Major in StatML]
Relevant Coursework:

15122 - Principles of Imperative Computation | 15112 - Fundamentals of Programming
36225 - Introduction to Probability Theory | 36200 - Reasoning with Data
21241 - Matrices and Linear Transformation

Skills

- **Programming Languages**: Python, C, SML
- **Data Analysis**: Hypothesis testing, Regression analysis, ANOVA, Probability distributions and statistical modeling
- **Tools and Software**: Excel, Figma, R, VSCode, React, Adobe Photoshop, Adobe Illustrator, Rhino 7

Honors

- **Dean's List** — [Fall 2023, Spring 2024]
- **Excellence Award** (90 out of 516 teams), National Youth Observation Contest, published research paper "*The Perpetual Conflict Between Big Data and Privacy: Unsafely Stored and Commercialized Users Data*" — [2022]
- **NOAA's 2022 Taking the Pulse of the Planet Award** for the science research project as the student of Oregon Episcopal School, National Oceanic and Atmospheric Administration Director of Education — [2022]

Experience

Research Assistant — [Spring 2024 - Now]

- Conducting data-driven research, leveraging natural language processing (NLP), text analysis, and image processing to extract insights from technical documents, inspection reports, and operational data.
- Developing computational tools to enhance decision-making and streamline workflow automation in industrial and transportation sectors.

Big Data Analytics & Privacy Leakage Research Paper — [Spring 2022]

- Published research paper "The Perpetual Conflict Between Big Data and Privacy: Unsafely Stored and Commercialized Users Data"
- Conducted as organizer, data collector, and journalist of team

Virtual Machine in C0 and C — [Fall 2024]

- Virtual Machine for C0 Bytecode: Built a VM to execute C0 bytecode with a stack-based architecture, handling operand manipulation, bytecode parsing, and control flow.
- Features and Error Handling: Implemented arithmetic operations, local variable management, memory allocation, dynamic function calls with a call stack, and runtime error handling.

Algorithms and Data-Structure Projects in C — [Fall 2024]

- Text Editor: Engineered a text editor leveraging gap buffers and doubly linked list data structures to optimize text editing operations such as insertion, deletion, and cursor movement.
- Huffman Compression: Designed and developed a Huffman compression tool to efficiently encode and decode data, achieving optimized prefix-free encoding through the implementation of Huffman trees.
- Peg Solitaire Solver: Created an optimized backtracking algorithm to solve Peg Solitaire puzzles, focusing on efficient move generation and precise solution verification.

Clubs and Activities

- Member of Scottylabs Tech Committee
- Member of Asian Student Association