Gerardo Montemayor

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EDUCATION

Cornell University | College of Engineering | Ithaca, NY
B.S. in Computer Science | GPA: 3.25 **Expected Graduation: May 2026**
Relevant Courses: Intro to Computing using Python, Object-Oriented Programming and Data Structures, Computing Tech in Smartphones, C++ Programming, Functional Programming, Discrete Structures
Upcoming Courses: Introduction to Machine Learning, Data Science, Algorithms and Analysis, Computer System Organization

River Hill High School | Clarksville, MD
Honors: Top 5% of graduating class (GPA: 3.98/4.87) - Principal's Honor Roll, STEM and Buds Mentor, Hawks on the Rise Mentor, Future Business Leaders of America National Finalist, Spanish Honors Society, Varsity Soccer and Track

SKILLS AND HONORS

Programming Languages: Java, Python, C++, OCaml, HTML/CSS
Technologies: IntelliJ, VSCode, Java Swing, Git, React, Docker, Foxglove Studio, ROS2, Test-Driven Development
Achievements: Black Belt from Nam's Taekwondo, Spanish Seal of Biliteracy

INVOLVEMENT & SERVICE

Cornell Mars Rover | Competitive Team **September 2023 - Present**
- Project team that designs a semi-autonomous rover to compete in University Rover Challenge
- Member of Software subteam: Developing a GUI with Foxglove, a robot data visualization system. Designing custom panels using React.js for frontend that communicates with ROS2 on backend
- Ensure a system that allows for simple initialization of ROS2 nodes and receiving information from the various parts of rover, including arm, camera feed, ArUco tag detection, sample analysis.

Soccer Coach | Soccer Association of Columbia | Columbia, MD **October 2021- October 2022**
- In charge of a U7 boys soccer team
- Organized bi-weekly practices, taught rules of the game, strategies for positioning and the importance of teamwork
- Communicated with parents and other coaches to host weekend games, oversaw matches as referee on the field
- Left a good impact on the kids, showed them lessons about respecting others, playing fair, and having fun

Spanish Translator | Community Action Council | Clarksville, MD **April 2021 -July 2022**
- Provided crucial translation between staff and Spanish-speaking customers
- Assisted in food distribution in the market, guiding customers, and ensuring a smooth process
- Strengthened the relationship between the food bank and the Spanish-speaking community

Mentor | STEM and Buds | River Hill High School **Sep 2020- November 2022**
- Taught middle-school students about a variety of fields of STEM
- Practiced scientific techniques through fun, interactive experiments
- Guided a small group in brainstorming a solution to a real-world problem and presenting it at an expo
- Contributed to an inclusive and enjoyable environment for the kids to express themselves and share ideas

PROJECTS

McGraw Tower Defense **September - Present**
- Developed a Cornell-inspired tower defense game using OCaml and Raylib, a game development library
- Optimized the game with efficient collision processing, texture-loading, and balance for best player experience
- Hand-drew cover art and game-sprites showcasing artistic proficiency

Little Language Model **October 2023**
- Built an LLM using OCaml that predicts the next words given a sequence
- Optimized N-gram models using different sampling techniques depending on randomness and word frequency
- Learned about list-processing strategies and applying higher-order functions and modularity to programs

Sudoku **August 2023**
- Independently created Sudoku game using Java Swing. Grew proficient in GUI development and object-oriented programming
- Utilized a variety of data structures and Swing strategies to create a clean front-end experience. Implemented features such as undo functionality and different puzzle difficulties

Maze Solver **April 2023**
- Collaborated with a partner to write algorithms to efficiently travel through mazes
- Integrated path-finding techniques through brainstorming and testing. Gained deeper understanding about shortest-path algorithms (Dijkstra's) and the graph data structure