Adam Gaia

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Work Experience

Scientific Computing Intern August 2016 to Present
University of Utah Engineering Department, Uintah Project (PDE-solving simulation software)

- Parallelized a post-processing script, reducing run-time from 18 hours to 1 minute with 400+ GB input files
- Created a Python script to recursively compare tree-structured simulation spec files for similar nodes
- Used Linux command line to run simulations on remote high-performance computing centers
- Saved countless hours of time by writing Bash scripts to automate menial tasks
- Documented 3 new features in the user guide.

Education

B.S. Computer Science - 3.2 GPA April 2021
University of Utah - Salt Lake City, Utah

Skills

- **Primary Languages:** C#, Python, Java, Bash, C++
- **Secondary Languages:** C, MATLAB, Tcsh
- **Tools:** Git/Github, MPI, Visual Studio, PyCharm, Linux command line, Arduino microcontrollers, LaTeX
- **Soft Skills:** Outgoing team player, time management, great oral and written communication skills

Computer Science and Engineering Projects

- **Parallel Laplace Solver:** *Final project for an extracurricular openMP, openACC, and MPI bootcamp*
  - Developed code remotely on a high-performance computing center
  - Used MPI to scale C code for 100 processors

- **Spreadsheet Application:** *Semester-long project to build an application from scratch in C#*
  - Used modular programming to combine individual components into a fully developed application
  - Used hash maps to keep track of cell dependencies to optimize formula calculation speed
  - Received an A on the project

- **Air-Powered Train Simulation:** *Numerical methods simulation of an air-powered train using MATLAB*
  - Created a program to solve for a train design to maximize speed without overshoting the destination
  - Worked as a team to abstract a physical model into a modular set of functions

- **Ping-Pong Ball Launcher:** *Project goal was to hit targets ranging between .5-1 meter away*
  - Microcontroller set firing velocity, launcher position, and launch angle
  - Processed an overhead image to find target location
  - 8th place in timed compitition (out of 100)

Technical Courses Taken

- Object-Oriented Programming
- Intro to Algorithms and Data Structures
- Software Practice 1 and 2
- Engineering Probability and Statistics
- Professional Communication for Engineers
- Scientific Computing
- Numerical Methods for Engineering Systems
- Computer Organization and Architecture
- Intro to Electrical Engineering
- Calculus 1, 2, and 3
- Linear Algebra and Differential Equations
- Partial Differential Equations