Jack Alexander Cooper

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Education

University of California, Santa Cruz   *Santa Cruz, CA*
Bachelor of Science in Computer Science   *August 2021*

Projects

Wonderloom | Python   *July 2023 - Present*
- Developing a comprehensive text-based program and model that automates and captures dynamic content generated by an AI agent like ChatGPT.
- Implementing a modular and versatile design through use of SQLAlchemy, SciPy, NumPy, and TensorFlow enabling widespread application of the program and model for use.
- Using machine learning to train an AI model (Large language model) capable of interfacing with an ORM database, deciphering user input to expand the database, and automating the data capture process from the language model agent.

Poker Hand Program | *C++*   *June 2022*
- Developed an open source poker hand program with features such as file reading and input validation. Among the first C++ implementations of the bitwise algorithm.
- Built with portability and cross-compatibility as a desirable aspect. Learned GoogleTest to use as the unit-testing framework and learned Cmake for project management and compilation.

Super Mario Level Generator | *Python*   *July 2020*
- Leveraged genetic algorithmic techniques to implement Design Element (DE) encoding, enabling the generation of visually appealing Mario levels with variable-length sequences of design elements.
- Innovated custom crossover and mutation operations for the DE encoding, effectively producing diverse levels with different design elements through collaboration with AI.
- Optimized level generation process while constrained to specific design objectives through the use of a generational genetic algorithm designed with fine-tuned fitness functions weighing design elements of a level such as symmetry and balance.

Ogar3 Agar.io AI | *JavaScript*   *July 2020*
- Enhanced Ogar3 Agar.io AI by transitioning it to a behavior tree model, resulting in improved decision-making and more sophisticated gameplay strategies.
- Achieved an 80% win rate against the original AI.

Skills

- **Programming Languages:** C, C++, and Python.
- **Tools:** Git, npm, Docker, CMake, and Unix.
- **Technologies:** LLMs, Neural Networks, and Machine Learning.
- **Frameworks and Databases:** PostgreSQL, Object Relational Mapping (ORM), GoogleTest, and Jest.
- **Libraries:** NumPy, SciPy, and SQLAlchemy.

Work Experience

Peet's Coffee   *Tysons, VA*
Barista   *August 2023 - Present*
- Prepared and served a variety of coffee and tea beverages, including espresso, cappuccino, latte, and specialty drinks, according to Peet's quality standards while providing excellent customer service.

LensCrafters   *Palo Alto, CA*
Sales Associate   *February 2023 - August 2023*
- Designed and implemented an 'express check-in' system for patients, utilizing a greedy heuristic to reduce average wait times by 25% compared to the previous method, resulting in enhanced customer satisfaction and increased operational efficiency.

Best Buy   *San Carlos, CA*
Sales Associate   *August 2022 - February 2023*
- Nurtured robust customer connections by delivering exceptional customer service, resulting in numerous repeat customers who specifically asked for assistance by name when seeking product knowledge.