Heagen Bell

(316)364-6720 — bellheagen@gmail.com — heagenbell@ku.edu — heagenbell.org — heagenb03

Summary — Collaborative full-stack engineer with experience in applying data science to large datasets who is excited to contribute to academic research and the technology industry. With a passion for learning new technologies and design patterns, a growing skill set, and proficiency in utilizing published academic papers, software documentation, and all other resources to creatively solve problems independently or as part of a team.

Technical Skills

Languages Python, Java, HTML, CS, JS/JSON
IDE/Tools VS Code, Git, IntelliJ, Blockbench, Gradle, Forge
Databases mySQL

Work Experience

KU Center for Undergraduate Research and Fellowships **August 2024 – Present**
Research Assistant
- Research Assistant to Dr. Hongyang Sun who specializes in high-performance computing (HPC), cloud/edge computing, and computational data science
- Designed and animated visualizations of the inner workings of HPC algorithms using Manim in Python for use as course material impacting nearly 100 students a semester and to incorporate into published research by the department
- Planned and organized research projects for published work, created timelines, and tracked progress to ensure steady and successful progression
- Draft and prepare research proposals outlining and summarizing key points, purpose, goal, and methods of the academic project

Chick-fil-A **May 2023 - August 2024**
Seasonal Team Member and Trainer

Education

University of Kansas **May 2028**
Bachelor of Science in Computer Science

Projects

OpenAI API Math Problem Creator **October 2024 – Present**
- Architected an API-driven Python-based app leveraging OpenAI's API and libraries SymPy and Kivy to generate custom math practice problems for the user
- Integrate SymPy to verify and cross-check practice problems and solutions generated by OpenAI to ensure all practice problems and solutions are correct
- Implemented Kivy to create an interactive user interface allowing a positive user experience of inputting mathematical concepts and output of personalized practice problems and corresponding solutions
- Handled API requests between the app and OpenAI to ensure smooth interaction by handling responses and troubleshooting issues that utilize structured outputs created from the custom JSON schema

Visualizing HPC and Data Science Algorithms **August 2024 – Present**
- Developed extendable and animated visualizations of high-performance computing (HPC) algorithms using the Python and Manim library to grant greater access with understanding complex mathematical concepts for Dr. Sun's students
- Illustrated custom animations for complex matrix operations such as multiplication and checkerboard distribution to improve comprehension of data distribution and computational operation
- Utilized the Manim library to produce engaging and high-quality visualizations that improve the student body's understanding of computing and algorithm techniques
- Engineered dynamic Python scripts to generate visualizations catered to the user request enabling an interactive visualization experience

Personal Portfolio Website **August 2024 – September 2024**
- Designed and implemented a personal portfolio website using Python, HTML, CSS, and JS to showcase personal achievements, projects, and skills
- Integrated responsive front-end development utilizing Bootstrap to ensure a positive user experience across all devices with Chrome emulation
- Implemented structured back-end development utilizing Flask to include form handling and a hierarchical architecture creating an interactive user experience
- Published and registered portfolio website using Namecheap alongside cPanel for site management to publish raw code to generate public access to all users