Kyle Earp

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Education

Tarleton State University - GPA: 4.0 — Stephenville, TX

Aug. 2021 – May 2025

- B.S. in Mathematics, Concentration in Data Analysis
- B.S. in Computer Science, Concentration in Artificial Intelligence and Data Science
- Notable Achievements: Received score of **2** on Putnam Exam (2024); President's List (All Semesters)

Experience

Undergraduate Research Assistant — May 2023 – Present

Tarleton State University — *Stephenville, TX*

- Contributed to the development and optimization of various Python scripts and algorithms to analyze and visualize data, enhancing the accuracy and efficiency of data processing and interpretation.
- Collaborated with faculty and graduate students to design and implement research projects, conducting literature reviews and data analysis to support ongoing research initiatives.
- Conducted rigorous testing and debugging of simulation software, ensuring robust performance and reliability while documenting processes to facilitate knowledge transfer and future research initiatives.
- Presented research findings at academic conferences and seminars, engaging with peers and faculty to discuss results and solicit feedback to enhance research quality and impact.

Mathematics Tutor — January 2022 – Present

Tarleton State University — *Stephenville, TX*

- Assisted students in understanding complex mathematical concepts, providing guidance to enhance comprehension and academic performance.
- Recieved training in effective tutoring techniques and strategies, adapting to diverse learning styles and individual needs to maximize student success.
- Coordinated with other tutors and faculty to develop and implement innovative teaching methods, fostering a collaborative learning environment and promoting student engagement.

Projects

Bayesian Methods to Infer ODE Model Parameters | *Python, Jupyter, Bash* — January 2023 – Present

- Adapted and implemented Bayesian inference methods to estimate parameters of ordinary differential equation (ODE) models, enhancing accuracy and robustness of parameter estimation in biological systems in relation to specific outbreaks.
- Utilized the Python library BayesFlow to impliment neural networks to estimate posterior distributions for parameter values and adapted the library to different disease models and outbreaks.
- Developed a Jupyter notebook to visualize the results of the Bayesian inference, enabling users to interact with the data and explore the impact of different parameters on the model.
- Automated the data processing and analysis pipeline using Bash scripts, streamlining the workflow and reducing the time required to generate results.

Musical Note Transposer with Interactive GUI | *Python, Tkinter, Java* — August 2021 – Present

- Developed a graphical interface to transpose musical notes, enabling users to input original and desired key signatures and display the transposed notes in real-time.
- Implemented the Tkinter library to create a user-friendly interface, allowing users to interact with the program and continually enter notes to transpose and change the original and desired keys.
- Develop verstions of the program in multiple languages to reinforce understanding of programming concepts and enhance versatility in software development.

Technical Skills

Languages: Python, C/C++, Java, Mathematica
Developer Tools: Git, Visual Studio, Linux, VS Code
Libraries: BayesFlow, Matplotlib, NumPy, Scipy, Pandas, Tkinter, CUDA