Mason Bane

817-487-5148 | mbane0525@gmail.com | linkedin.com/in/mason-bane/ | github.com/MBane04

Education

Tarleton State University - GPA: 3.69 — Stephenville, TX
B.S. in Computer Science, Concentration in Computer Engineering, Minor in Mathematics — *Aug. 2022 – May 2026*

Hill College — Hillsboro, TX
Associate's in Liberal Arts — *Aug. 2019 – Sept. 2023*

Experience

Undergraduate Research Assistant — May 2024 – Present
Tarleton State University — *Stephenville, TX*

- Contriubted to the development and optimization of various N-Body simulations utilizing C/C++, enhancing computational efficiency and accuracy through advanced algorithms and parallel processing with CUDA.
- Collaborated with interdisciplinary teams to visualize complex data sets using OpenGL and Blender, translating scientific concepts into interactive simulations and improving data interpretation.
- Conducted rigorous testing and debugging of simulation software, ensuring robust performance and reliability while documenting processes to facilitate knowledge transfer and future research initiatives.

Undergraduate Technology Specialist — August 2024 – Present
Tarleton State University — *Stephenville, TX*

- Managed and maintained a high-performance computer lab dedicated to research initiatives, ensuring optimal functionality and user accessibility for students and faculty.
- Executed routine system updates, hardware maintenance, and troubleshooting, leveraging technical expertise to enhance system performance and reliability.
- Maintained a clean and organized lab environment, promoting a collaborative workspace that fosters innovation and productivity.

Undergraduate Lab Instructor, Texas Government — January 2023 – December 2023
Tarleton State University — *Stephenville, TX*

- Guided and supported students in policy research and analysis, facilitating the exploration of bills and regulations to enhance critical thinking and analytical skills.
- Conducted regular meetings and collaborated with the lecture professor and fellow lab leaders to align objectives and improve instructional methodologies, ensuring a cohesive educational experience.

Projects

Left Atrial Arrythmia N-body Simulation | *C, CUDA, OpenGL, Blender, Bash* — August 2024 – Present

- Collaborated with a multidisciplinary team to develop an accurate N-Body model of the left atrium, integrating anatomical and physiological data while validating custom algorithms for simulating electrophysiological behavior and chaotic atrial arrhythmias, exploring potential treatments and enhancing understanding of the underlying causes of atrial fibrillation.
- Presented simulation outcomes at academic conferences, showcasing the tool's potential to transform training methodologies for medical professionals and improve clinical decision-making in arrhythmia treatment.

MicroPlastic-Polymer Interactions | *C/C++, CUDA, OpenGL, Bash* — May 2024 – August 2024

- Contributed to the development and optimization a CUDA-based N-body simulation of Microplastic-Polymer interactions leveraging NVIDIA's CUDA technology for parallel processing and OpenGL for real-time 3D visualization, enhancing computational efficiency and user experience.
- Crafted a user-friendly interface for toggling simulation features, providing enhanced visual cues and aiding in the understanding of complex phenomena.
- Collaborated with a multidisciplinary team to define requirements, design features, and refine the simulation tool, ensuring alignment with project goals and user needs.

Technical Skills

Languages: C/C++, HTML/CSS, Java
Frameworks: React, Swing
Developer Tools: Git, Visual Studio, Linux, VS Code, Blender
Libraries: OpenGL, CUDA