

Mason Bane

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

Summary: Computer Science student (Computer Engineering) targeting embedded firmware and hardware/software integration roles. Proficient in microcontroller programming, low-level C/C++ and ARM Assembly, and circuit design. Strong mathematical/analytical skills with research experience.

EDUCATION

Tarleton State University <i>Bachelor of Science in Computer Science, Concentration in Computer Engineering</i> Minor in Mathematics GPA: 3.94/4.00 (Institutional) — Cumulative: 3.75/4.00	Stephenville, TX Aug. 2022 – May 2026 (Expected)
Hill College <i>Associate of Arts in Liberal Arts</i>	Hillsboro, TX Aug. 2019 – Sept. 2023

EXPERIENCE

Undergraduate Research Assistant <i>Tarleton State University</i>	May 2024 – Present Stephenville, TX
<ul style="list-style-type: none">Contributed 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 create digital twins to model complex problems 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 <i>Tarleton State University</i>	Aug. 2024 – Present Stephenville, TX
<ul style="list-style-type: none">Managed and maintained 15 devices in a high-performance computer lab dedicated to research initiativesPerformed system updates, hardware maintenance, and technical support, resolving issues promptly to minimize downtime and maintain optimal performance.Maintained a clean and organized lab environment, promoting a collaborative workspace that fosters innovation and productivity.	

PROJECTS

N-body Digital Twin of the Left Atrium <i>C/C++, CUDA, OpenGL, Blender, Bash</i>	Aug. 2024 – Present
<ul style="list-style-type: none">Developed a CUDA-accelerated N-body model of the left atrium to simulate chaotic atrial arrhythmias, integrating anatomical data to explore potential treatments for atrial fibrillation.Built an interactive GUI using ImGui to streamline parameter adjustment and visualization, making the complex simulation accessible to a broader, non-technical audience.Presented findings at academic conferences, demonstrating the tool's potential to improve clinical decision-making and transform training for medical professionals.	
Analog Pink Noise Generator Circuit <i>LTSpice, Python, MATLAB, Breadboarding</i>	Aug. 2025 – Dec. 2025
<ul style="list-style-type: none">Designed and prototyped a BJT-based pink noise generator with active filter stage using LTSpice for simulation and breadboarding for physical implementation.Developed Python scripts to quantitatively compare simulation results with an ideal pink noise spectrum, guiding component selection and filter tuning for improved accuracy.Built a physical demonstration circuit with audio output, successfully verifying simulation models against real-world performance.Collaborated in a two-person team to present comprehensive design methodology, results, and data-driven decision process to peers and professors.	

TECHNICAL SKILLS

Programming Languages: C/C++, Python, Java, ARM Assembly, Bash
Embedded & Hardware: TIVA-C Series (TM4C), Arduino, Raspberry Pi, GPIO
Simulation & Design Tools: LTSpice, MATLAB, Blender
Systems & Development: Git/GitHub, Linux, Visual Studio, VS Code, Make/CMake
Parallel Computing & Graphics: CUDA, OpenGL, ImGui