

Tyler Morrill

Software Engineer & Research Scientist

Los Angeles, CA

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Experience

December 2022 - Present

Software Engineer II — *Lockheed Martin* (Los Angeles, CA)

- Core developer on a team writing a parallel, high-performance physics simulation software suite for use on GPUs and supercomputers.
- Research and implement numerical solver techniques such as iterative solvers, matrix compression, preconditioning, and interpolation.
- Write codes, tools, and other scripts to support engineers in iterative design workflows.
- Provide support and assistance to code users, write/maintain code documentation, create software tutorials, and present technical material to users and stakeholders.

January 2020 - May 2022

Teaching Assistant & Lead Math Tutor — *UCF* (Orlando, FL)

- Assist course instructor during lectures for Calculus and Differential Equations courses.
- Hold recitation sessions and office hours; grade papers.
- Provide both one-on-one and group assistance to students in courses ranging from college algebra to differential equations.

Education

January 2026 - Present

Georgia Institute of Technology

Computer Science M.S. – Computer Graphics

January 2020 - May 2022

University of Central Florida

Mathematics B.S. & Computer Science Minor – Computational Mathematics

Projects

Real-time Fluid Simulation — [Github](#)

- Real-time, interactive fluid simulation project using a variation of the Smoothed Particle Hydrodynamics (SPH) method.
- Simulation rendered using a custom-built Vulkan renderer (see below).
- Utilizes multithreading, fast ODE solvers, GPU compute shaders, and unbounded spatial hashing.

Graphics Engine — [Github](#)

- To learn real-time computer graphics rendering techniques and APIs.
- Extensible, high-performant, and interactable real-time rendering engine written in Vulkan adapted for graphics or gaming applications.
- Support for shaders written in GLSL or Slang using the slang compilation API for shader caching and hot-reloading.
- GLTF and OBJ model importing support.
- Support for new Vulkan features such as dynamic rendering and bindless descriptors.

Skills

Proficient in C, C++, Python, Fortran, C#

Concurrent programming using OpenMP, MPI, multithreading

Developing in Unity engine

Profiling code with RenderDoc, gperftools, or other homebrew profilers
Graphics APIs incl. Vulkan and OpenGL

GPU shader programming with GLSL, HLSL, Slang

Slang compilation & reflection APIs

Adept in Linux dev environments

Managing large Git repositories

MATLAB and Python visualization scripting

Technical presentations to technical and non-technical audience

Writing tech memos and software documentation

Honors & Awards

Cum Laude Honors

Distinguished Undergraduate Researcher Award: UCF

Hernandez Award for Mathematics

Pi Mu Epsilon Mathematics Honor Society

Dean's List Academic Honor Roll Pegasus Scholarship: UCF