Erik Coltey

(305) 793-5461
colteye@gmail.com

colteye.github.io
github.com/colteye
linkedin.com/in/erikcoltey

EDUCATION

M.S. in Computer Science - GEM Full Fellow   Graduation: December 2022
Florida International University, Miami, FL
B.S. in Computer Engineering - Honors College   Graduation: April 2021
Florida International University, Miami, FL

SKILLS

General: Embedded Programming, Graphics/Game Engines, Artificial Intelligence/Machine Learning.
Tools: Git, OpenGL, Pytorch, CMake, Visual Studio/Code, XCode, Photoshop, Unreal Engine, Unity, Blender, HTML/CSS, React Native, Django, Microsoft Office.
Programming: Proficient in: C/C++, Python. Familiar with: C#, Java, JavaScript, MATLAB.
Languages: Trilingual in: English, French, Spanish.

TECHNICAL EXPERIENCE

Lam Research | Software Engineering Intern   September 2019 - May 2022
- Built a customer-requested core feature to a voxel-based C++ 3D viewer used for semiconductor fabrication simulation: multiple cross-section planes to help aid in the visualization of complex 3D structures.
- Iterated on user interface designs with managers and stakeholders.

FIU DMIS Lab | Research Assistant   September 2019 - May 2022
- Translated scientific MATLAB code to C++.
- Wrote software in Python to generate large-scale disaster datasets for AI using US Government data and GPS mobility.
- Built a framework for creating full VR training environments using JSON files in Unity.
- Lead an agile web/app team to create a platform for curating supplies during times of need using Typescript and Python.
- Published two first-author Computer Science research papers and co-authored two other published papers.

NASA Armstrong | Software Engineering Pathways Intern   January 2019 - August 2019
- Designed a C++ pipeline for visualizing very large (30 million+ points) Point Clouds, with features including tile-based streaming and Octree level of detail support, to enable long-distance spatial mapping on the Microsoft HoloLens.
- Created a C++ back-end for sending/receiving NMEA GPS/Heading UDP data packets for iPhone, Android, and HoloLens.
- Built a gesture and voice command based mission planning system for a PC autonomous drone simulator by an award-winning team at NASA Langley, along with remaking the entire simulator GUI for use with the HoloLens.

Southeastern Universities Research Association | Independent Consultant   October 2018 - January 2019
- Added lunar surface 3D scenes in the Unreal Engine based on a pipeline using Lunar Reconnaissance Orbiter (LRO) data.
- Built a system for classifying different lunar/martian rocks based on common geological properties.
- Created C++/Blueprint simulations and 3D models/textures of geological research tools (X-Ray Fluorescence Spectrometer, LIDAR scanner), and vehicles such as the Lunar Roving Vehicle (LRV).

NASA Goddard | Software Engineering Intern   June 2018 - August 2018
- Created a pipeline for batch converting CAD assets into optimized 3D models for AR/VR with Blender's Python API.
- Created a VR visualization of the HI-SEAS habitat in Hawai'i for potential astronaut crew training by 3D modelling/texturing the full environment, along with implementing most of the functionality using UE4 Blueprints.

PERSONAL PROJECTS

SSTV Weather Balloon - https://github.com/colteye/SSTVWeatherBalloon
- Goal: Launch payload on a Weather Balloon and wirelessly transmit images/telemetry from near space.
- Wrote software in C for tracking GPS, Altitude, Temperature, Pressure, Rotation, and Acceleration. Also built software for the ESP-32 camera to transmit SCOTTIE 1 SSTV signals.

FoodTags - https://github.com/colteye/FoodTags
- Senior Design: Worked with a team to build an embedded system to transmit sensor data while only powered via radio waves.

CEngine - https://github.com/colteye/CEngine
- Goal: Build a real-time 3D rendering engine using OpenGL.
- Includes features for import/export models/textures, physically based rendering (PBR) support, and shader batching using C++.

AWARDS

GEM Fellowship - Full Fellow	August 2021 - May 2022
NASA Goddard Swoosh Award in CS/IT	August 2018
Forbes 30 Under 30 Scholar	August 2018
Team Fortress 2: Saxxy Awards - Best Overall	March 2018
Dean's List	December 2017 - Present
FIU Ambassador Scholar	August 2017 - May 2021
Florida Bright Futures Scholar	August 2017 - May 2021