

Erik Coltey

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EDUCATION

Florida International University, Miami, FL

Expected Graduation: April 2021

B.S. in Computer Engineering - Honors College, 3.83/4.0 GPA

SKILLS

Tools: GIMP, Photoshop, UE4, Unity, Source Engine, Blender, Zbrush, AutoCAD, CloudCompare, Substance Painter, Microsoft Office Suite, CMake, Microsoft Visual Studio/Code, XCode, Android Studio, MySQL, Git/GitHub, HTML/CSS, Agile/Scrum.

Programming Languages: Proficient in: C/C++, C#. Familiar with: Python, Java, JavaScript, PHP, Objective-C.

Languages: Fully trilingual in Spanish, French and English.

EXPERIENCE

FIU DMIS Lab | Undergraduate Research Assistant

September 2019 - Present

- Working with the FIU Robotic Digital Fabrication Lab (RDF) to create an NSF-funded VR-based learning tool for teaching how to operate heavy machinery such as robotic arms. Website is: <http://roboticsacademy.fiu.edu/welcome>
- Implemented and conducted an experiment on predicting student understanding in multiple choice assessments in a week. This included loading custom questions using JSON, and an event-driven sensor/question data collection system for the Magic Leap.
- Built a framework for loading in learning content and conducting data collection within a VR environment using a MySQL learning content database, a PHP API, web services for retrieving scraped web data, complex 3D scenes defined as JSON files, and custom UI/UX in Unity.

NASA Armstrong | Simulation 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 support, to enable long-distance spatial mapping on the HoloLens.
- Created a universal C++ back-end for sending/receiving GPS/Heading data using UDP Sockets, along with iPhone/Android apps to send GPS data, allowing the HoloLens to receive live location data.
- Built a gesture and voice command based mission planning system for a HoloLens autonomous drone simulator for an award-winning team at NASA Langley, along with remaking the entire simulator GUI to be HoloLens compatible.

Southeastern Universities Research Association (SURA) | Independent Consultant

October 2018 - January 2019

- Continued development with NASA (under CRESST II) on the HI-SEAS habitat VR pilot using the Unreal Engine.
- Added accurate lunar surface maps based on a pipeline for processing Lunar Reconnaissance Orbiter (LRO) data.
- 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).
- Created a system for examining different lunar/martian rocks based on common geological properties in C++ with JSON.

NASA Goddard | AR/VR for Science and Engineering Intern

June 2018 - August 2018

- Created an automated pipeline for batch converting CAD assets into 3D models for AR/VR with Blender's Python API.
- Helped create an all new VR visualization of the HI-SEAS habitat for potential HEO crew training, being tasked with modelling/texturing the full environment, along with implementing most of the functionality using UE4 Blueprints.

Valve Software | Freelance 3D Artist

February 2014 - Present

- Create various 3D designs and set them up to be compatible with the video game *Team Fortress 2*, raising an estimated \$375,000.00 for Valve with the work contributed.
- Helped create a potential community update for *Team Fortress 2* in a group of 29 people. Website is: Frontline.tf
- Worked on a short film for *Team Fortress 2* with a group of 18 other artists and animators, which won the *Saxxy Awards*.

VOLUNTEERING

FIU Honors College | EdgeLab Mentor

January 2018 - Present

- Create workshops for FIU students regarding topics such as game design, basic programming, and 3D modelling.
- Process 3D files from programs such as SolidWorks and Fusion 360 in Blender to optimize them for printing.

AWARDS

NASA Goddard Swoosh Award in CS/IT

August 2018

Forbes 30 Under 30 Scholar

August 2018

Saxxy Awards - Best Overall

March 2018

Dean's List

December 2017 - Present

FIU Ambassador Scholar

August 2017 - Present

Florida Bright Futures Scholar

August 2017 - Present