Victor Contreras

Texas, U.S.A | (956) 459-3249 | victor.contreras02@utrgv.edu
LinkedIn | **Website** | **GitHub**

Experience

Graduate Research Assistant **Sept 2025 -**
Department of Civil Engineering | UT Rio Grande Valley

- Researching Facial Affect Analysis (FAA) with Graph Convolutional Networks for autonomous vehicles.

Database Developer Intern | Idaho National Laboratory | Idaho Falls, ID **May 2024 – Aug 2024**

- Developed a SQL database using Python to automate data integration and resolve errors during testing and quality assurance in a Linux environment.
- Created a script to transfer and organize tens of thousands of files from the INL Sawtooth HPC, while recording metadata (file location, assessment, file type, etc.) in the database for future access using Pandas and CSV modules.
- Reduced storage requirements for output files on HPC by over 90%.
- Enabled the team to efficiently access historical simulation test output files spanning over five years.

Education

University of Texas Rio Grande Valley, M.S Computer Science **Jan 2025 – Dec 2026**

- **Relevant Coursework:** Deep Learning, Data Mining and Warehousing

University of Texas Rio Grande Valley, B.S Computer Science **Aug 2022 – Dec 2024**

- **GPA: 3.88 | Magna Cum Laude**
- **Relevant Coursework**: Data Structures and Algorithms, Operating Systems, Software Engineering, Computer Networks

Texas Southmost College, A.A General Studies **Aug 2020 – Dec 2022**

- **GPA: 3.82 | Magna Cum Laude**

Projects

ZeroToHire | React, Flask, Python, AI/ML (Link) **Aug 2025 -**

Developing an interactive AI coding tutor using React frontend and Flask backend, integrating a HuggingFace LLM to provide personalized step-by-step guidance for LeetCode Problems if needed.

- Building an intelligent problem management system with curated LeetCode dataset integration, and natural language problem filtering by data structures and algorithms.
- Included conversational AI features such as session persistence, Monaco code editor integration, and custom prompt engineering for patient tutoring rather than direct solution provision.

High-Performance Voxel Engine | C/C++ (Link) **Aug 2024 – Jan 2025**

A real-time 3D voxel rendering engine built with C++ and BGFX graphics library, featuring procedural terrain generation and optimized rendering performance for a university senior capstone project.

- Implemented procedural terrain generation using OpenSimplex noise with multi-octave layering, supporting different terrain and realistic height mapping.
- Optimized chunk-based rendering system with greedy meshing algorithm and face culling, achieving sub-400ms chunk generation times through extensive performance profiling and optimization.
- Developed advanced graphics features including ambient occlusion lighting, dynamic directional lighting system, and first-person camera controls with mouse/keyboard input.

Technical Skills

Languages: Python, C++, JavaScript, C#, Ruby
Frameworks & Libraries: Flask, React, NumPy, Pandas, Matplotlib, Torch, TensorFlow, Hugging Face
Game Engines: Unity
Tools & Scripting: Git, Bash, PowerShell, Vim, GNU nano
Databases & Query Languages: SQLite, MongoDB

Certifications

- Introduction to Deep Learning, **NVIDIA Deep Learning Institute** **Feb 2025**
- Introduction to Cloud Computing, **IBM Coursera** **Mar 2024**
- Introduction to DevOps, **IBM Coursera** **Feb 2024**