

Carlos Torres Espinoza

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EDUCATION

University of Texas Rio Grande Valley

Bachelor of Science in Computer Science

Edinburg, TX

Aug. 2022 – Dec 2026

EXPERIENCE

Undergrad Research Hackathon | *Python*

November 2025

- Investigated emergent computation in full-tilt systems by modeling burnout bots deterministic agents with limited movement capacity to encode binary logic through spatial interactions.
- Used Python-based simulation and analysis tooling to rapidly prototype, test, and validate logical behaviors within a grid-based environment during a time-constrained hackathon setting
- Designed and validated NAND and fan-out logic gadgets using deterministic global command sequences, proving the model's capability for universal computation under burnout constraints

PROJECTS

Live Streaming Server | *Docker, RTMP, HLS, HTML/JavaScript, NGINX*

November 2025 – December 2025

- Developed and implemented a containerized live-streaming server using Node.js, NGINX, Docker, and OBS, enabling real-time ingestion via RTMP and playback through HLS in a web client.
- Built a web-based streaming interface with HTML and JavaScript to consume HLS streams and display live video content in the browser.
- Packaged and deployed the streaming infrastructure with Docker to streamline local testing and reproducibility

Teacher/Student Portal | *Ruby, Ruby on Rails, PostgreSQL*

November 2025 – December 2025

- Developed a student-teacher course registration portal using Ruby on Rails and Ruby, enabling users to browse courses, manage enrollments, and enforce capacity constraints.
- Led code reviews across the team to validate feature implementations, maintain code quality, and ensure alignment with evolving project requirements.
- Developed and tested end-to-end workflows for course browsing and registration using BDD and unit testing practices.

Gemfile.lock Vulnerability Scanner | *Ruby, Ruby on Rails, PostgreSQL*

September 2025 – November 2025

- Developed and implemented vulnerability scanner for Gemfile.lock files to identify vulnerable Gems.
- Developed and implemented a scan history feature, enabling users to track previous scans and download detailed PDF reports
- Contributed to system architecture decisions and core backend functionality with Ruby on Rails, and PostgreSQL

TECHNICAL SKILLS AND OTHERS

Languages: Python, C++, Java, Ruby, HTML/CSS, JavaScript

Frameworks: Ruby on Rails

Developer Tools: Git, GitHub, Docker, VS Code, Visual Studio

Awards: Placed on Hack Research 2025 @ UTRGV, Dean's List, President's List

Certificates: NVIDIA Fundamentals of Deep Learning

Organizations: ColorStack @ UTRGV