

Mario A. Camarena

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EDUCATION

The University of Texas Rio Grande Valley (UTRGV) <i>Master of Science, Computer Science</i>	Jun 2025 – Present
The University of Texas Rio Grande Valley (UTRGV) <i>Bachelor of Science, Computer Science</i>	<i>Expected May 2027</i>
Texas Southmost College (TSC) <i>High School Dual Enrollment</i>	May 2021 – May 2025
	GPA: 3.4/4.0
	Aug 2017 – May 2021
	GPA: 3.0/4.0

EXPERIENCE

Artificial Intelligence Research Assistant <i>UTRGV MECIS (NSF CREST), Dept. of Civil Engineering</i>	Feb 2024 – Present
<ul style="list-style-type: none">Improved urban-scene segmentation accuracy by 29% for autonomous driving use cases by leading a custom "AD-SAM" dual-encoder effort from dataset prep to evaluation. <i>Pending publication on IEEE-T-ITS</i>Reduced boundary errors and class-imbalance misses by adopting a deformable decoder and hybrid loss (Focal, Dice, Lovász, Surface), improving per-class consistency across 19 classes.Ran a driving-simulator study, managing logistics, data collection, data cleaning, and human subject testing. With the goal of testing on a Graph Convolutional Network (GCN) model to predict driver emotional responses, and support the development of emotion-aware autonomous systems.	<i>Edinburg, TX</i>
Machine Learning Intern (REU) <i>University of California, Riverside</i>	Jun 2024 – Aug 2024
<ul style="list-style-type: none">Benchmarked segmentation models (SAM, G-SAM, DeepLabV3, UNET, YOLO-based baselines) on real-world data and summarized trade-offs to guide model selection in autonomy applications.Conducted a comparative analysis of performance; collaborated with a Ph.D. mentor on reporting for reproducible results.	<i>Riverside, CA</i>

PROJECTS

STABLES – Simulated Parking Management App Flutter, Node.js/Express, PostgreSQL, Python <i>Project Lead & Lead Developer Live: stables-utrgv-parking-app.web.app</i>	Jun 2024 – Present
<ul style="list-style-type: none">Shipped a cross-platform app managing 800+ parking spots across 3 lots with live availability and reservations; led a 4-person team end-to-end.Built the backend (Node.js/Express + PostgreSQL) and a Python simulator generating time-based synthetic data for realistic load testing.Implemented GPS mapping, spatial checks (ray-casting), and double-booking prevention; enforced code review standards and task ownership.	<i>Edinburg, TX</i>
Online Portfolio – Interactive Website Next.js, TypeScript, PostgreSQL, Framer Motion, Tailwind CSS <i>Live: mario-camarena.netlify.app</i>	Jun 2024 – Present
<ul style="list-style-type: none">Built an interactive portfolio with advanced animations (magnetic buttons, typewriter sequences, floating particle canvas, scroll-triggered effects) to showcase projects and research work.Implemented a full-stack contact system with PostgreSQL, validation, and a protected admin dashboard featuring submission analytics and real-time charts.Optimized responsive performance and UX across mobile/desktop using Tailwind + Framer Motion and careful animation budgeting.	<i>Edinburg, TX</i>

Custom PC Builds and Mobile Device Repair Hardware Assembly & Troubleshooting
<i>Freelance Hardware Technician</i>

<ul style="list-style-type: none">Delivered custom PCs tailored to budget and performance needs, scoped requirements with customers; handled component selection, system tuning, and cooling design across gaming rigs and home-office builds.Diagnosed and repaired smartphones end-to-end including screen replacements and battery swaps.Set expectations with clear estimates and approvals; provided written quotes, timelines, and status updates.

SKILLS

- Languages:** Python; JavaScript/TypeScript; Dart; C++; Rust.
- ML:** PyTorch; TensorFlow; Jupyter; CUDA (exposure); model evaluation.
- Web/App:** React; Next.js; Flutter; Node.js/Express; Ruby; Tailwind CSS; Framer Motion.
- Data/Infra:** PostgreSQL; SQLite; Git/GitHub; Google Cloud Platform; Linux.