

Gregory Dsouza

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Education

B.Sc. Mechanical Engineering (CGPA: 3.8/4.0) – Embry-Riddle Aeronautical University 2021 – 2025

Honors: Magna Cum Laude

Awards: Outstanding Undergraduate of the Year 2025 for Biomedical Systems

Experience

Teaching Assistant (Biomechanics), Embry-Riddle Aeronautical University Jan 2025 – Apr 2025

- Instructed 25+ students in osteokinematic motion analysis using OpenSim to understand segmental motion
- Taught arthrokinematic reach area evaluation for 2 DOF systems using MATLAB and numerical methods
- Analyzed 1000+ motion capture data points for 26 segment VICON Nexus data using Python to assess gait patterns to reinforce applied biomechanics concepts

Teaching Assistant (Engineering Dynamics), Embry-Riddle Aeronautical University Jan 2025 – Apr 2025

- Built and graded 8 lab assignments over 10 weeks to develop student skill in computing rigid body motion
- Led project based learning initiative by grouping students into teams of 5
- Supported 30+ students through weekly office hours to resolve questions and strengthen problem solving

Teaching Assistant (Numerical Methods), Embry-Riddle Aeronautical University Sep 2024 – Dec 2024

- Taught Newton-Raphson and Runge-Kutta methods in MATLAB to solve complex engineering problems
- Taught finite difference methods to simulate nodal temperature distribution in a heated beam
- Estimated drag coefficients of 2 unique models using root finding techniques from experimental data
- Developed 17+ lab experiments leveraging numerical methods to replace impractical analytical approaches

Projects

Project Lead: *An Adaptive Kayaking Mechanism For All (with Oceans of Hope Foundation)* Aug 2024 – Apr 2025

- Directed multidisciplinary team of 6 using structured project management methods to convert stakeholder needs from 4 interviews into engineering requirements that guided mechanical and assistive design
- Applied biomechanics driven refinement of design using 1500+ data points from VICON Nexus motion capture, osteokinematic analysis in MATLAB, and numerical modeling to maximize elbow joint range of motion
- Built data visualizations in Python and C++ to compare stroke efficiency, joint loading, and user effort across multiple prototype iterations, enabling evidence based design decisions
- Conducted risk analysis using FEA and full-scale testing in operating environments across 20+ mechanical and electrical failure modes and proposed mitigation strategies that were integrated into the final prototype
- Mentored a sophomore engineering student by teaching biomechanical analysis, FDM 3D printing workflows, Arduino microcontroller programming, and CAD fundamentals to support their technical development
- Presented the final system to industry advisory board and ranked among the top 5 posters out of 40+ submissions

Lead Programmer: *Indienomicon Mega Health Jam 2024* 06 Sep 2024 – 08 Sep 2024

- Led a team of six with no prior rapid prototyping experience to create a complete game from scratch in under 48 hours using C#, GLSL, and Godot's scripting language GDScript
- Trained team members to use the Godot engine while coordinating software structure, version control workflows, and debugging
- Used Git and GitHub to manage repositories and streamline contributions across programming and asset creation
- Optimized assets in Blender and Krita, ensuring compatibility with real-time rendering systems and physics constraints
- Presented and demoed the project to industry judges and an audience of 100+, and was also interviewed by Team Orlando News, receiving commendations for technical implementation