Eduardo Davalos

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Education

PhD	**Vanderbilt University, Nashville, TN, USA**, Computer Science	Aug. 2021 to present

- GPA: 3.95/4.0

MS	**St.Mary's University, San Antonio, TX, USA**, Electrical Engineering	July 2019 to Apr. 2021

- GPA: 4.0/4.0
- Thesis: FastPoseCNN: Real-Time Monocular Category-Level Pose and Size Estimation Framework

BS	**St.Mary's University, San Antonio, TX, USA**, Electrical Engineering	July 2015 to Apr. 2019

- GPA: 3.93/4.0
- Thesis: SKORE: Smart Keyboard Operated by Robotic Educator

Experience

American Red Cross, Fullstack Software Engineer - Intern — May 2019 to July 2019, 2 months

- Project Description: Developed a web-based application for the American Red Cross to manage and monitor the status of edge devices deployed in the field.
- Technologies: Python, Wordpress, Arduino, Docker.

St. Mary's Engineering Department, Robotics Teaching Assistant — May 2016 to July 2016, 2 months

- Mentored, directed, and guided students throughout a summer program, teaching them principle components in mechanical design, electrical circuitry, and software development aimed at robotics.

St. Mary's Learning Assistance Center, Programming and Physics Tutor — July 2016 to Mar. 2018, 1 year 8 months

- Instructed and guided students in the subjects of classical physics and C programming.

Publications

3D Gaze Tracking for Studying Collaborative Interactions in Mixed-Reality Environments — Apr. 2024

Eduardo Davalos, Joyce H. Fonteles, Yike Zhang, Ashwin T. S., Umesh Timalsina, Gautam Biswas

Monocular Microscope to CT Registration using Pose Estimation of the Incus for Augmented Reality Cochlear Implant Surgery ⧉ — Mar. 2024

Yike Zhang, Eduardo Davalos, Dingjie Su, Ange Lou, Jack H. Noble

A First Step Using Machine Learning Methods to Enhance Interaction Analysis for Embodied Learning Environments ⧉ — Apr. 2024

Joyce H. Fonteles, Eduardo Davalos, Ashwin T. S., Yike Zhang, Mengxi Zhou, Efrat Ayalon, Alicia Lane, Selena Steinberg, Gabriella Anton, Joshua Danish, Noel Enyedy, Gautam Biswas

ChimeraPy: A Scientific Distributed Streaming Framework for Real-time Multimodal Data Retrieval and Processing ⧉ — Dec. 2023

Eduardo Davalos, Umesh Timalsina, Yike Zhang, Jiayi Wu, Joyce H. Fonteles, Gautam Biswas

Identifying Gaze Behavior Evolution via Temporal Fully-Weighted Scanpath Graphs ↗   Mar. 2023

Eduardo Davalos, Caleb Vatral, Clayton Cohn, Joyce Horn Fonteles, Gautam Biswas, Naveeduddin Mohammed, Madison Lee, Daniel Levin

Prediction of Students' Self-confidence Using Multimodal Features in an Experiential Nurse Training Environment ↗   June 2023

Caleb Vatral, Madison Lee, Clayton Cohn, Eduardo Davalos

A Tale of Two Nurses: Studying Groupwork in Nurse Training by Analyzing Taskwork Roles, Social Interactions, and Self-Efficacy ↗   June 2023

Caleb Vatral, Clayton Cohn, Eduardo Davalos, Gautam Biswas, Madison Lee, Dan Levin, Eric Hall, Ho Ellen Holt

Using the DiCoT framework for integrated multimodal analysis in mixed-reality training environments ↗   July 2022

Caleb Vatral, Gautam Biswas, Clayton Cohn, Eduardo Davalos, Naveeduddin Mohammed

Adaptive Scaffolding to Support Strategic Learning in an Open-Ended Learnin Environment ↗   July 2022

Anabil Munshi, Gautam Biswas, Eduardo Davalos, Olivia Logan, Gayathri Narasimham, Marian Rushdy

Projects

RedForest ↗   Oct. 2023

- Project Description: Developed a EdTech platform for scalable multimodal learning analytics and AI, providing self-regulating feedback to teachers and students.
- Technologies: TS/JS, NextJS, Tailwind, TensorFlow, D3.

SyncFlow ↗   Jan. 2024

- Project Description: Developed both a cloud and IoT platform for scalable multimodal analytics, including streaming, storage, processing, and AI logic of multimodal data.
- Technologies: Rust, Python, WebRTC, NextJS, Tailwind.

ChimeraPy ↗   June 2021

- Project Description: Developed a scientific distributed streaming framework for real-time multimodal data retrieval and processing.
- Technologies: Python, ZeroMQ.

SKORE ↗   June 2018

- Project Description: Developed a smart keyboard operated by a robotic educator.
- Technologies: Python, Arduino.

Technologies

Languages: Python, JS/TS, Rust, C++, Java

Libraries: PyTorch, TensorFlow, ReactJS, NextJS, FastAPI, Flask, Numpy, Pandas, D3, Matplotlib