John William Andrade Martins

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EDUCATION

Carnegie Mellon University | GPA: 3.80/4   Pittsburgh, PA

Master of Science Electrical and Computer Engineering   Class of 2023
Bachelor of Science Electrical and Computer Engineering   Class of 2022
Minor Chinese Studies

RESEARCH EXPERIENCE

Carnegie Mellon SALUS Lab | Full-Time Research Associate   June 2023 – July 2024 | Pittsburgh, PA
- Designed sensor arrangements as well as custom computer vision and machine learning methods to understand human-machine interaction in advanced manufacturing cyber-physical-social systems.
- Published human-machine interaction datasets and findings from deep learning algorithm benchmarking for human action recognition applications. I presented these publications at several international conferences.

Carnegie Mellon WiTech Lab | Graduate Student Researcher   January – May 2023 | Pittsburgh, PA
- Developed sensor fusion techniques for a distributed array of mmWave radars used for an efficient, wide-area security screening system.
- Created algorithms and graphical interfaces for determining accurate location of target metal objects and visualizing complex radar readings.

PUBLICATIONS / PRESENTATIONS

- [Journal Paper] **Martins, J.**, Lin, C., Flanigan, K. A., and McComb, C. (2025). "HM-SYNC: A Multimodal Dataset of Human Interactions With Advanced Manufacturing Machinery." ASME. J. Mech. Des. April 2025; 147(4): 044504. https://doi.org/10.1115/1.4067744
- [Conference Paper] **Martins, J.**, Flanigan, K., & McComb, C. (2023). Skeleton-based Human Action Recognition in a Thermal Comfort Context. *The 10th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys '23)*, November 2023, Istanbul, Türkiye. https://doi.org/10.1145/3600100.3626339
- [Conference Paper] Lin, C., **Martins, J.**, Flanigan, K. (2024). Read the Room: Inferring Social Context Through Dyadic Interaction Recognition in Cyber-physical-social Infrastructure Systems, *ASCE International Conference on Computing in Civil Engineering (i3CE '24)*, July 2024, Pittsburgh, Pennsylvania.
- [Conference Presentation] **Martins, J.**, Flanigan, K. (2024). Enhancing System Diagnostics and Performance by Embedding Human Interaction Within Digital Twins. *Engineering Mechanics Institute Conference and Probabilistic Mechanics & Reliability Conference (EMI/PMC 2024)*, May 2024, Chicago, Illinois.

WORK EXPERIENCE

General Academic | Supplemental Instructor   September 2025 - Present | Houston, TX
- Instruct a variety of classes for standardized test preparation or supplemental subject topics.
- Develop customized student learning plans for academic development and intellectual goal setting.

Urban Harvest | Market Coordinator   August 2025 - Present | Houston, TX
- Co-lead organization and scheduling procedures for Houston's largest non-profit farmers market.
- Collaborate in the operation of 'Mobile Markets', a city-wide produce distribution system.

NXP Semiconductors | Non-Volatile Memory Test Intern   May - August 2020 | Austin, TX
- Developed MRAM semiconductor test algorithms in C and Ruby for memory sense amp trimming that was more than 3x faster than previous implementation.
- Created an innovative platform to make connecting and sending data to remote testers more efficient using SSH keys and user interfaces.

PROJECTS

Smart Thermostat | Final Project for 12770 "Autonomous and Sustainable Buildings" Course   May 2023 | Pittsburgh,PA
- Designed and installed a multi-nodal temperature sensing platform in my home and used the data to construct a grey-box building control model to suggest proactive interventions for optimized occupant thermal comfort.
- Retrofit home thermostat with raspberry pi and relays that successfully operated HVAC system according to set occupant preferences automatically.

NexLife LLC | Co-Founder & CTO   February 2021 – January 2023 | Austin, TX
- Awarded UT Austin McCombs Summer Entrepreneur Fellowship to build a cross-platform, event finding mobile app using Flutter and Firebase platforms and code in Dart and TypeScript.
- Provided technical perspective for market testing, business strategy, financial projections, and full-stack solutions in an agile development environment.

Talking Piano | Senior Capstone Design Project   December 2022 | Pittsburgh, PA
- Investigated the recreation of human voice using a piano as the medium.
- Created a web-application that allows users to record their voice, processes the audio to isolate piano key frequencies, and hear their voice played back on a self-created, virtual piano.

Space Thermal Regulator | Moon Ranger PCB Project   February – April 2020 | Pittsburgh, PA
- Designed an analog, Schmitt trigger-based thermal regulator circuit for use during the space transit phase of a lunar rover and created PCB schematic using Altium design software.

SKILLS

Technical
- C
- Python
- SystemVerilog
- C++
- MATLAB
- PCB Design
- IoT
- AI / ML
- Unix OS

Languages
- Portuguese (Native)
- Spanish (Working Professional)
- Mandarin Chinese (Limited Professional)