

JOSE A. SANCHEZ VILORIA

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Education

Florida Atlantic University, Boca Raton, FL

Ph.D. Computer Engineering

Jan 2023 – Dec 2026

M.S. Computer Engineering

Jan 2021 – Dec 2022

B.S. Computer Engineering

Jan 2019 – Dec 2020

Technical Skills

AI / Machine Learning: Deep Learning, Machine Learning, Federated Learning, Reinforcement Learning, TensorFlow, PyTorch, Keras, scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, HuggingFace, OpenCV, R

Wireless Systems: 5G NR, SDRs, GNU Radio, PySDR, OpenAirInterface, O-RAN, USRP, NVIDIA Aerial, Sionna

Software Development: Python, C++, C, Java, SQL, MATLAB, REST APIs, Docker, GitHub, PHP, HTML, JavaScript, CSS

Systems & Platforms: Embedded Systems, IoT, ROS, AWS, MQTT, RTMP, IBM Watson, Blockchain

Experience

Graduate Research Assistant

Mar 2022 – Present

Center for Connected Autonomy and Artificial Intelligence (CAAI), FAU

Boca Raton, FL

- Conduct research on AI-assisted secure wireless communications for 5G and IoT systems.
- Engineered AI-based physical-layer security techniques using SDR hardware and machine learning libraries.
- Led development of a 10-node embedded SDR testbed for spectrum monitoring and real-time wireless experimentation.
- Collaborated with multidisciplinary teams across wireless communications, AI, and embedded systems.

Wireless Software Engineer Intern

Jun 2024 – Sep 2024

Apple

Cupertino, CA

- Worked with the FR2 Beam Management team in a fast-paced wireless systems environment.
- Integrated system workflows enabling AI/ML-assisted wireless solutions.
- Designed and executed rigorous edge-case testing to improve robustness and reliability.

Software Development Engineer Co-Op

Jan 2024 – May 2024

Amazon Robotics

Boston, MA

- Developed and maintained fleet management software for large-scale autonomous robotic systems.
- Solved complex distributed systems challenges related to coordination of robotic agents.
- Designed, implemented, and tested software to optimize system efficiency and performance.

Research Assistant

Jan 2019 – Aug 2022

Lab in a Window

Boca Raton, FL

- Integrated MQTT and RTMP services for control and real-time streaming of online laboratories.
- Designed LAMP-based web interfaces increasing student engagement by 35%.
- Engineered and integrated seven embedded systems with cloud IoT platforms for sensor and actuator control.

Systems Administrator

Jan 2019 – Aug 2022

Latin American and Caribbean Consortium of Engineering Institutions (LACCEI)

Boca Raton, FL

- Led teams to enhance web platforms using the LAMP stack.
- Designed and maintained mission-critical databases ensuring security and performance.
- Managed AWS infrastructure supporting over 10,000 users annually.

Publications

- AI-Assisted Physical Layer Key Generation for Secure Wireless Communications, Asilomar Conference on Signals, Systems, and Computers, 2025
- GR-PHYSEC: Real-Time Channel-Based Key Generation for Physical Layer Secure Wireless Communications, GNU Radio Conference, 2025
- Networked AI for Detection, Classification, and Localization of RF Signal Emitters, URSI NRSM, 2025
- Dedicated Blockchain for the Generation of Digital Certificates and Badges in Universities, ASEE Annual Conference and Exposition, 2025
- Adaptive Federated Learning for Automatic Modulation Classification Under Class and Noise Imbalance, AAAI, 2024
- Unsupervised Training Dataset Curation for Deep-Neural-Net RF Signal Classification, SPIE Big Data V, 2023
- Addressing the Need for Online Engineering Labs for Developing Countries, WEEF-GEDC, 2021
- Online Laboratory Communication Using MQTT IoT Standard, WEEF-GEDC, 2021
- Design of an Online Laboratory Authoring Tool, Frontiers in Education (FIE), 2020

Projects & Competitions

NSF Convergence Accelerator Track G – ASTRA Link 2022–2023
Researcher & Software Engineer

- Designed an RF testbed simulating DoD device interactions using SDRs and MATLAB.
- Led AI-assisted physical-layer authentication research using deep metric learning.
- Prepared technical documentation and presentations for stakeholders.

Agora Meetings – Virtual Conference Platform 2020–2022
Full-Stack Developer

- Built a multi-room virtual conference platform during COVID-19.
- Increased attendance by 65% post-pandemic and achieved 95% participation during the pandemic.
- Scaled infrastructure using AWS and integrated Zoom API/SDK.

Smart Multipurpose Robotic System (NSF I-Corps, WAVE) 2020–2022
Full-Stack & Embedded Systems Developer

- Developed robotic hardware and software modules using ROS, MQTT, RTMP, OpenCV, and YOLOv4.
- Led customer discovery and multidisciplinary collaboration.

Blockchain IoT with Smart Contracts 2022

- Developed Ethereum smart contracts using Solidity.
- Integrated embedded systems with Web3-enabled interfaces.

IBM IoT Hackathon – Weapon Detection Camera 2019
3rd Place

- Built real-time weapon detection using IBM Watson and computer vision.
- Integrated SMS alerting for real-time threat notification.

Honors & Awards

Honorary Member, National Academy of Inventors (2023–Present)
Business Plan Competition – Sanitation Robot, 4th Place (2021)
IBM IoT Hackathon – Weapon Detection System, 3rd Place (2019)
LAC Scholarship – Honorary Recipient

Languages

English, Spanish, Portuguese