

# Josue Sanchez

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## EXPERIENCE

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**Engineer I** | *XYPRO Technology Simi Valley, CA* Jan. 2024 – Present

- Designed and developed a full-stack Retrieval-Augmented Generation (RAG) system serving 50 internal users across development, support, and management; ingests ~18,000 documents (product manuals, guides, case summaries, Confluence pages, KB articles) from Salesforce, Jira, Confluence, and Slack via event-driven triggers
- Built the backend using FastAPI to manage session state, serve role-based content, and expose APIs for data ingestion, retrieval, and access control; integrated Gemini LLMs via LangChain with vector store retrieval
- Developed a secure, responsive frontend in Vue3 + TypeScript with role-based UI and Entra ID authentication; deployed with Docker Swarm + Traefik on GCP with MongoDB
- Added an MCP (Model Context Protocol) layer enabling AI agents to connect to the RAG system via API keys with per-key usage tracking and access control
- Leading initiative to migrate test suite (ReadyAPI, Rest-Assured, Selenium, WebDriverIO) to a unified Playwright + TypeScript suite

**Machine Learning Research Assistant** | *Cal State Northridge Northridge, CA* Oct. 2023 – May 2024

- Trained computer vision models (DaViT, EfficientNetV2, MobileOne) for multi-class pomegranate disease classification using transfer learning; achieved 99%+ accuracy across five classes (DaViT: 99.28%, EfficientNetV2M: 99.54%, MobileOne-S4: 99.15%)
- Performed preprocessing including normalization, augmentation, and stratified dataset splitting; designed and executed experiments in PyTorch
- Co-authored IEEE-published research paper: *2025 IEEE 4th Int'l Conference on Computing and Machine Intelligence (ICMI)*, pp. 1–8, doi: [10.1109/ICMI65310.2025.11141088](https://doi.org/10.1109/ICMI65310.2025.11141088)

**Cloud Support Associate, Intern** | *Amazon Web Services Remote* Jun. 2023 – Aug. 2023

- Gained experience in cloud service management, deploying and maintaining AWS services including VPC, EBS, DynamoDB, SQS, and ECS; built highly available architectures following the AWS Well-Architected Framework
- Earned AWS Solutions Architect – Associate certification during tenure

**Curriculum Manager** | *Computerwisekids Inc. Woodland Hills, CA* Jun. 2013 – Jun. 2023

- Designed and delivered K-5 coding and robotics curricula across 36 sites; led teacher training for 500+ educators and transitioned instruction to online platforms

## PUBLICATIONS

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**Pomegranate Disease Classification Using Advanced Deep Learning Models** | *IEEE ICMI 2025*

- J. Sanchez, J. Enriquez, and A. Verma, *2025 IEEE 4th Int'l Conference on Computing and Machine Intelligence (ICMI)*, MI, USA, 2025, pp. 1–8. doi: [10.1109/ICMI65310.2025.11141088](https://doi.org/10.1109/ICMI65310.2025.11141088)
- All three models exceeded 99% accuracy; demonstrates lightweight models are viable for mobile/drone agricultural disease detection

## TECHNICAL SKILLS & CERTIFICATIONS

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**Languages:** Python, TypeScript, JavaScript, C++, C, Java, SQL

**AI / ML:** PyTorch, LangChain, RAG, Transfer Learning, Vector Stores, Gemini LLMs, Keras, scikit-learn, NumPy, Matplotlib

**Backend & Infra:** FastAPI, Docker, Docker Swarm, Traefik, GCP, MongoDB, AWS

**Frontend:** Vue3, React Native, pandas

**Testing:** Playwright, Selenium, ReadyAPI

**Tools:** Git, VS Code, Jupyter Notebook

**Certificate:** AWS Solutions Architect – Associate (SAA-C03)

## EDUCATION

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**California State University, Northridge**

*Bachelor of Science in Computer Science, Magna Cum Laude*

May 2024

*Northridge, CA*