Joseph Carl Santos

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Education

California Polytechnic State University, San Luis Obispo — San Luis Obispo, CA

Bachelor of Science in Computer Science — *Expected May 2027*

- Cumulative Transfer GPA: 3.806/4.0 (from California State University, San Marcos)
- Relevant Coursework: Data Structures and Algorithms, Computer Architecture, Linear Algebra, Calculus I–III, Discrete Math, Physics of Mechanics and Sound, Physics of Electromagnetism and Optics, Assembly and Digital Circuits

Experience

Software Engineer Intern — June 2025 – August 2025

Pure Holdings Inc. d/b/a One Take Audio — *Los Angeles, CA (Remote)*

- Built a model precaching system (C++/ONNX Runtime) that preloaded multiple ONNX models in memory, enabling quicker model switching at 150 milliseconds.
- Optimized system performance by profiling CPU/memory load, GPU utilization, and audio latency; proposed fixes for jitter and buffering issues.
- Improved CUDA cross-platform compatibility on Windows and documented environment requirements to enable reliable builds and future performance optimizations.

Learning Assistant — August 2024 – December 2024

California State University San Marcos Corporation — *San Marcos, CA*

- In partnership with faculty, supported and implemented active and collaborative learning activities that may lead to more equitable and effective learning outcomes
- Facilitated small group interactions, such as group activities and tutorials, to address student challenges with course content effectively
- Provide feedback to faculty about student perspectives and misconceptions
- Demonstrated leadership and effective communication skills to diverse student population

Projects

AI Video Generator Infrastructure | *Python, FastAPI, Flask, RunPod, Cloud GPU* — May 2026 – June 2026

- Built a lightweight video generation pipeline on a cloud GPU, exposing model inference through a FastAPI HTTP endpoint.
- Developed a Flask interface to submit prompts, poll model readiness, stream generated `.mp4` outputs, and support browser playback/downloads.
- Handled practical serving constraints such as generated video storage using Amazon S3.

AI Voice Creative Suite | *C++ (Qt), Python* — January 2026 – April 2026

- Built a desktop application for voice conversion using an open-source Python model, with a C++ Qt-based frontend; C++ inference using ONNX Runtime
- Implemented audio waveform visualization for frontend by analyzing real-time input; develop a threading algorithm.
- Implemented C++ preprocessing to read and stream audio, while matching input dimensions and data formats to maintain compatibility with the original PyTorch-based model during inference
- Built a soundboard feature using third-party TTS and voice-cloning APIs, allowing users to upload voice samples, generate custom speech, and download audio outputs.

Technical Skills

Programming Languages: C++, Python
Frameworks & APIs: PyTorch, Qt6
Libraries: NumPy, pandas, Matplotlib, librosa, torchaudio
Developer & Debug Tools: Git, GitHub, Docker, WinDBG, NVIDIA Visual Profiler, Intel VTune Profiler
Cloud & Platforms: Google Cloud Platform (GCP), NVIDIA Triton, Vast.ai, RunPod, Lambda Labs, GPU-based training