

IMAAAN SOLTANALIPOUR

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EDUCATION

University of California, Los Angeles (UCLA)

B.S. in Computer Science; Technical Breadth in Electrical Engineering & Economics

Sep. 2024 – Jun. 2026

Los Angeles, CA

Moorpark College

A.S. in Computer Science, Mathematics, Physics, Natural Sciences, & Liberal Studies

Aug. 2022 – May 2024

Moorpark, CA

RESEARCH EXPERIENCE

UCLA David Geffen School of Medicine – Aharoni Lab

Undergraduate Researcher (Optical Neuroscience / Neural-Connectivity Inference)

Jan. 2025 – Present

Los Angeles, CA

- **Publication:** H. Chorsi, S. Soldado-Magraner, Y. Jin, **I. Soltanalipouryokesammak**, et al. “*STIMscope: centimeter-scale all-optical imaging and patterned optogenetic manipulation at single-cell resolution.*” **bioRxiv** (2026). PMID: 42244717.
- **Conference:** Society for Neuroscience, Neuroscience 2025 (co-author).
- Contributed Python/C++ GUI features and per-feature workflows to STIMscope, an open-source benchtop all-optical platform for single-cell-resolution imaging and DMD-patterned optogenetic stimulation.
- Implemented GUI capabilities across live-hardware and offline-simulation modes: DMD patterned projection via a C++ projector engine, a multi-method calibration suite, real-time per-ROI trace extraction, Otsu/Cellpose segmentation, and I²C DMD & MCU hardware control.
- Built the containerized compressive-sensing connectivity-inference pipeline: CAVIaR variational inference with parity-validated NumPy/CuPy(CUDA)/JAX backends, plus CoSaMP and spike-and-slab CAVI variants, reaching precision = recall = F1 = 1.0 on Izhikevich+GCaMP simulation, containerized for NVIDIA Jetson AGX Orin.
- Led a literature-grounded audit and refactor of the codebase under mutation-testing, coverage gates, and per-module specifications, then shipped the open-source release (GitHub Actions Docker/GHCR workflow, GitHub Wiki).

Humanoid Robot Learning

Researcher

Summer 2026 – Present

Los Angeles, CA

- Conducting a collaborative literature review on humanoid robot learning to scope a summer research project and proposal.

INDUSTRY EXPERIENCE

Amgen

Software Engineer Intern

Jun. 2025 – Sep. 2025

Thousand Oaks, CA

- Modernized a legacy Internet Information Services (IIS) architecture providing access to **1M+ documents** for manufacturing facilities across countries during server shutdowns, using JavaScript and Python.
- Implemented search, filtering, caching, and an informative user interface so users could quickly find critical documents.
- Participated in Amgen’s Intern Bootcamp – engaged with peers, supervisors, and company leaders in weekly Q&A meetings and toured research and manufacturing facilities.

NASA Langley Research Center – NCAS Mission 3 Capstone

Lead Software & Systems Engineer

Jun. 2025 – Jul. 2025

Hampton, VA

- Co-authored a proposal addressing a gap in NASA’s Advanced Air Mobility mission – on-ground infrastructure for eVTOL aircraft emergency response in rural areas; presented to a panel of engineers, scientists, and supervisors and fielded technical questions.
- Designed a mobile vehicle fleet (landing pads, generators, weather sensors, and multi-channel radio/cellular/satellite communications) enabling coordination between aircraft, first responders, and victims.
- Conducted on-site research at NASA Langley: toured facilities, met with employees, and applied subject-matter-expert insights to refine the proposal.

Outlier

Software Developer / AI Trainer (Contract)

Jan. 2024 – Jun. 2024

Remote

- Trained AI language models by analyzing deviations in model responses and rewriting outputs for clarity and accuracy.
- Wrote Python, JavaScript, Java, C++, SQL, and HTML/CSS for model refactoring, debugging, and documentation.
- Identified and corrected inaccuracies and hallucinations in AI model outputs.

SELECTED RECENT PROJECTS

Trajectory-Representation Ablation, Flow-Matching Driving Planner (*Academic Project*) 2026

- Ablated four trajectory representations (Cartesian waypoints, Frenet, velocity, acceleration) inside a vendored NeurIPS-2025 flow-matching planner (Flow Planner, Tan et al.); Cartesian waypoints cut open-loop ADE $\sim 5\times$ over velocity/acceleration (4.19 vs $\sim 22/20$ m on 1.5k-scenario subsets). Designed a `CenterlineEncoder` centerline-conditioning module for the Frenet variant; ran single-/multi-seed experiments and co-authored the report.

Generative Models, Transformers & Deep RL (*Academic Project*) 2026

- Implemented generative models (conditional DDPM with a flow-matching head on a class-conditioned Residual U-Net; GAN/LSGAN/DCGAN; VAE/CVAE; a from-scratch MiniGPT) and deep-RL agents (DQN/Double-DQN on `CarRacing-v3` with Polyak target updates; DDPG with Ornstein-Uhlenbeck exploration on Inverted Double Pendulum).

LLM Knowledge Base / RAG 2026

- Built an offline-first, event-sourced knowledge system: captures text via a global hotkey (Windows), organizes it with a **local LLM** (Ollama) into a semantically linked Markdown vault, exposes it to AI agents via a local Model Context Protocol (MCP) server, and auto-generates dependency-ordered plans via a Kahn topological sort.

Agentic Meta-Harness 2026

- Built a meta-harness enforcing 8 fail-closed gates (build, hygiene, layout, format, lint, typecheck, tests, security) on a Claude Code agent (v0: Python) – blocks the agent from “finishing” until every check passes; grounded in architecture-decision records.

BetBat – Real-Time Social Prediction Market (*CS 130, team of 5*) 2026

- Co-built a real-time prediction-market app (Next.js 16 / React 19 / TypeScript / Firestore; live on Vercel) with transaction-safe coin economics and a resolution state machine (Firestore atomic transactions; 2/3-supermajority voting; security-rule-locked writes), tested by unit, security-rules, and end-to-end suites under GitHub Actions CI.
- Drove team software-engineering rigor: authored INVEST user stories, a design document, and UML diagrams (class/sequence/state-machine/use-case), applying Gang-of-Four design patterns.

Found Sound Orchestra (*Hackathon Project*) 2026

- Built and **deployed** a generative-music web app: maps camera-captured objects to instruments via Gemini Flash, composes pieces with Lyria Pro and music videos with Veo 3.0, with a live FFT stem-mixer.

TECHNICAL SKILLS

Languages: Python, C/C++, TypeScript, JavaScript, SQL, Bash, Verilog, RISC-V Assembly, HTML/CSS

ML / AI: PyTorch, NumPy, SciPy, CuPy, scikit-learn, OpenCV, Cellpose, CUDA; diffusion models, flow matching, transformers, deep RL, compressive sensing & Bayesian/variational inference

Web & Full-Stack: React, Next.js, Node.js, FastAPI, Flask, Firebase (Firestore, Auth), TailwindCSS, REST / WebSockets

Systems & Tools: NVIDIA Jetson AGX Orin, Docker, ZeroMQ, GitHub Actions CI/CD, PyQt, IDS Peak, Linux, Git, pytest, Playwright, Ollama, MCP, FPGA, Raspberry Pi, Arduino, Unity ML-Agents

Coursework: Algorithms & Complexity, Operating Systems, Computer Architecture, Computer Networks, Machine Learning, Deep Learning, Robot Learning, Probability & Statistics, Linear Algebra, Signals & Systems, Electromagnetics

LEADERSHIP & ACTIVITIES

Creator, Community College Research Organization (2023): built a platform connecting students and professors to propose research projects and recruit collaborators.

NASA NCAS Mission 2 – Explore (2024): designed mission-control software and a hierarchical one-parent/three-child rover system for a simulated lunar mission with a team of 12; presented to NASA engineers.

NASA NCAS Mission 1 – Discover (2024): completed NASA’s five-week STEM program; researched AI/ML applications to solar storms and atmospheric particles; produced a final infographic for NASA’s Science Mission Directorate.

Dev Launchers (Nonprofit), Full-Stack Volunteer (2023): 80+ commits (JavaScript/Strapi); built the first backend profile-picture upload; led the profile-page team.

President, Persian Club, Moorpark College: founded and led the cultural club; ran weekly meetings and a campus-wide Persian New Year event.