

# Sanchit Singh

San Diego, CA — sanchittech0.01@gmail.com — (559) 779-2212  
sanchitsingh.com — github.com/sanchitsingh001 — linkedin.com/in/sanchitsingh001

## Education

### San Diego State University

Bachelor of Science in Computer Science

Expected May 2026

GPA: 3.51/4.00 (Major GPA: 3.88/4.00)

Dean's List (Fall 2023, Spring 2024, Fall 2024, Spring 2025)

Relevant Coursework: Data Structures & Algorithms, Machine Learning, Artificial Intelligence, Computer Architecture, Advanced Programming Languages, Software Systems, Probability/Statistics, Linear Algebra, Calculus, Physics

## Publications

- Aditi Naiknaware\*, **Sanchit Singh\***, Hajar Homayouni, Salimeh Sekeh. *Temp-SCONE: A Novel Out-of-Distribution Detection and Domain Generalization Framework for Wild Data with Temporal Shift*. NeurIPS 2025 Workshop on Reliable ML for Unreliable Data (**Paper + Poster Presentation, ACCEPTED**).
- Elkins, A. C., **Singh, S.\***, Pourebadi, M., Amadasun, U. P., Abhari, K. *Socially Intelligent Robots with Large Behavior Models: Challenges, Strategies, and Future Research Opportunities*. International Conference on Information Systems (ICIS) 2025 (**ACCEPTED**).
- Elkins, A. C., **Singh, S.\***, Pourebadi, M., Amadasun, U. P., Abhari, K. *Designing Socially Grounded Data Pipelines for Training and Operating Socially Intelligent Robots: Challenges and Future Directions*. Hawaii International Conference on System Sciences (HICSS) 2026 (**ACCEPTED**).
- Elkins, A. C., **Singh, S.\***, Blankenship, S., Kieback, A., Amadasun, U. P., Chadha, A. *DAWZY: A New Addition to AI powered "Human in the Loop" Music Co-creation*. NeurIPS 2025 Workshop on AI for Music (**Paper + Demo Track + Poster Presentation, ACCEPTED**). *Demo Track – Extended Abstract*.

(\* denotes equal contribution)

## Research Experience

### Socially Intelligent Robots (Multimodal Understanding), James Silberrad Brown Center for Artificial Intelligence at SDSU Lead Student Researcher

Aug 2024–May 2025

Advisors: Prof. Mary Pourebadi, Prof. Kaveh Abhari, Prof. Aaron Elkins

- Designed and conducted video question-answering experiments using VLMs (LLaVA) and LLMs (LLaMA) to improve temporal scene understanding, integrating a face recognition module for identity tracking and context-aware response generation.
- Contributed to advancing the lab's vision of enabling socially aware, human-centered robots capable of understanding and responding to people in real-world environments such as hospitals and mental health settings

### Out-of-Distribution Robustness (Temp-SCONE), Sekeh Lab, SDSU Student Researcher Feb 2025–Sep 2025

Advisors: Prof. Hajar Homayouni, Prof. Salimeh Sekeh

- Designed and evaluated a Novel Temp-SCONE framework, a temporal extension of SCONE and WOODS for robust OOD detection under evolving distributions.
- Built pipelines with WideResNet and Vision Transformers, training across temporally split datasets (CIFAR-10, CINIC-10, Imagenette)
- Contributed to theoretical analysis of temporal consistency and its relationship to generalization error under domain shifts

**DAWZY: Human-in-the-Loop AI for Music Production, Independent Research** *Independent Research Lead & Equal First Author* Jun 2025–Sep 2025

- Independently conceived and led a research initiative exploring human–AI co-creation in digital audio workstations, focusing on feasibility, design, and the cognitive dimensions of assistive creativity.
- Designed the research and technical framework, implemented experimental prototypes, and conducted user studies to evaluate learning, usability, and collaboration in human-centered creative AI systems.

**Privacy in Graph Learning, Privacy and Anonymity Lab (PAL), SDSU** *Student Researcher* Jun 2025–Present

Advisor: Prof. Joann Chen

- Researching node-, edge-, and subgraph-level membership inference attacks on provenance graph datasets using Graph Neural Networks
- Developing unified pipelines with shadow/target splits to evaluate inference attacks across graph granularities

**Bioacoustics Representation Learning, MAR Lab, SDSU** *Student Researcher* Sep 2025–Present

Advisors: Prof. Hajar Homayouni, Prof. Marie Roch (with San Diego Zoo Wildlife Alliance)

- Applying self-supervised learning to 4 TB of rainforest audio data to cluster and analyze animal vocalizations across species and habitats.
- Developing transformer-based embedding pipelines and attention-guided clustering to detect rare and frequency-specific acoustic events.

## Selected Projects

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**DAWZY — AI Assistant for Music** *Project Lead and Developer* 2025

- Developed an AI-powered Digital Audio Workstation that enables beginners to create and edit music through natural language interaction.
- Finalist (1 of 3 in Creative AI Track; 3 tracks total, 9 finalists overall,  $\approx 2.6\%$  of 350+ projects) at UC Berkeley AI Hackathon 2025, selected from 1,400+ participants.
- Pitch: YouTube — Submission: Devpost.

## Awards & Honors

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- Nominated for the **CRA Outstanding Undergraduate Researcher Award (2025–2026)** (*results pending*).
  - Awarded a **\$3,000 Seed Fund (2025)** from the Lavin Entrepreneurship Center to support research and development of an independent AI venture.
  - **Dean's List (2023–Present)**, San Diego State University — awarded consecutively each semester for academic excellence.
  - **Finalist (2025)**, UC Berkeley AI Hackathon — 1 of 9 finalists (top  $\approx 2.6\%$ ) among 350+ projects and 1,400+ participants.
  - **TensorFlow Developer Certificate (Mar 2024)**.