

SANCHITSAI NIPANIKAR

Computer Engineering, B.Tech

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Summary

Disciplined Computer Engineering undergraduate with a keen interest in core technical areas including Operating Systems, High-Performance Computing (HPC), Compilers and Mathematics. Hands-on experience in NLP, ML and Language Models (LLMs/SLMs) through research internship, coursework and national-level hackathons. Research-driven throughout the degree, with multiple Scopus-indexed publications across IEEE and Springer. Seeking an entry-level role as a Software Engineer/ AI Engineer/ Systems Researcher with the agility to adopt new technologies and make meaningful contributions.

Education

Vishwakarma Institute of Technology, Pune (SPPU) <i>Bachelor of Technology (B.Tech), Computer Engineering</i>	2022 – 2026 CGPA: 8.54
Narayana Junior College, Kondapur, Hyderabad (TSBIE) <i>Intermediate (Class XII)</i>	2020 – 2022 92.50%
Sant Tukaram National Model School, Latur (CBSE) <i>Matriculation (Class X)</i>	2019 – 2020 95.60%

Skills

Programming and Scripting Languages: C, Python, CUDA C++, SQL

Frameworks and Libraries: PyTorch, OpenCV, NumPy, Pandas, Matplotlib, FastAPI

Databases: MySQL, MongoDB, Firestore

Cloud and DevOps: AWS, Docker

Version Control and Build Tools: Git, CMake

Work Experience

Web Development Intern <i>CORAZON HOMES Pvt. Ltd.</i>	Mar 2025 - May 2025 <i>Hybrid</i>
- Redesigned and optimized (SEO) the company's real-estate website using React as part of an industry-sponsored project, leading to a 5-10% improvement in search engine visibility and approximately 10% increase in organic traffic. - Architected key modules including property listings, user authentication, advanced search filters, a booking interface, and an admin dashboard.	

Projects

- VishwaVeda: Commentary-Grounded Sanskrit Translation System**
Research Internship Project - Domain: Neural Machine Translation (NLP) (8th Sem, 2026)
 - Developed a hybrid Neural Machine Translation (NMT) system for the Bhagavad Gita (700 Sanskrit verses) addressing theological accuracy through Retrieval-Augmented Generation (RAG).
 - Tech: React, Tesseract.js (OCR, client-side), AWS Bedrock, AWS Amplify (deployment), RAG pipelines.
- Let It Compile – Adaptive RL-Driven GPU Compilation Optimization**
Research Internship Project - Domain: Compiler Design, HPC, Machine Learning (8th Sem, 2026)
 - Built a PPO-based reinforcement learning agent that reads live CUPTI hardware counters (achieved occupancy, L2 hit rate, DRAM bandwidth, SM utilization) and NVML telemetry (GPU utilization, temperature, power draw) to adaptively select `--maxrregcount` and block-size configurations that outperform PTXAS static heuristics.
 - Compilation stack: Python - Numba JIT - LLVM IR - PTX - PTXAS - SASS - CUPTI feedback loop.
 - Tech: CUDA, PTX/SASS, CUPTI, NVML, PTXAS, Numba, PyTorch, PPO, Gymnasium, C/C++, Python.

- **CT-Former: Reconstructing 3D CT Scans from Single X-rays with Transformer-Enhanced NeRF and MLG Ray Sampling** (7th Sem, 2025)
Major Project - Domain: Medical Imaging, Computer Vision, Deep Learning
 - Developed a Transformer-enhanced Neural Radiance Field (NeRF) framework for sparse and single-view X-ray projections; introduced Masked Local-Global (MLG) ray sampling, reducing ray samples by approximately 40% while preserving anatomical detail.
 - Achieved +6-12 dB PSNR improvement over FDK/SART and approximately 2-3 dB over NeRF, with SSIM up to 0.97 on chest, foot, and head CT datasets.
 - Tech: Python, PyTorch, NeRF, Transformers.

Research and Publications

- **Machine Translation of Bhagavad Gita: A Comprehensive Literature Review** (8th Sem, 2026)
Neural Machine Translation, NLP
- **ML-Driven JIT Optimization in Dynamic Programming Languages: A Systematic Review**
Compilers, HPC, Machine Learning
- **CT-Former: Reconstructing 3D CT Scans from Single X-rays with Transformer-Enhanced NeRF and MLG Ray Sampling** (7th Sem, 2025)
Medical Imaging, Deep Learning - Under review, ScienceDirect (Elsevier) Q1 Journal.
- **SigLIP-Gemma-2.4B: Lightweight Multimodal Vision-Language Model** (6th Sem, 2025)
LLMs and SLMs - ICTCS 2025, Springer LNNS Series (Scopus-indexed).
- **A Multimodal Anonymization Framework for MP4 Videos** (5th Sem, 2025)
Computer Vision, AI/ML - Best Paper of Session, IEEE ESCI 2025, Pune (Scopus-indexed). [Paper]
- **Flex Sensor Controlled Prosthetic Hand using Wireless Communication** (4th Sem, 2025)
Microprocessors, CAD - Patent published, Intellectual Property India.
- **Face Recognition-Based Attendance System** (3rd Sem, 2023)
Computer Vision – Springer AICTC 2024 (Scopus-indexed). [Paper]

Courses and Certifications

- Python for Data Science, AI and Development - IBM.
- Fundamentals of Deep Learning - NVIDIA.
- Building RAG Agents with LLMs - NVIDIA.
- Introduction to Transformer-Based NLP - NVIDIA.
- Deep Learning Specialization - DeepLearning.AI.
- AWS Cloud Technical Essentials - AWS.

Leadership and Activities

- College team captain for Table Tennis and Tennis; played at university level.
- State-level tennis player for U14 and U17 categories.
- Gold medal for sketching in Indian Art Contest; certificate of appreciation.