

# Prashanth Vangari

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## Work Experience

**Lead AI Research Engineer**, *SkillTree LLC* Sept 2025 – Present

- Leading a **two-member AI team** building lightweight pose models for **Rep AI**, a real-time push-up tracker.
- Researching **CNN-ViT hybrid architectures** for real-time **human pose estimation**.
- Implementing and benchmarking **1D-CNN**, **2D-CNN**, and **ViT** baselines for hybrid model design.
- Built a **pose-to-classification pipeline** achieving **95.1% accuracy** and **0.11 loss** on the **Push-Up dataset** using a 1D-CNN.
- Running experiments on **AWS g4dn.xlarge** with **Weights & Biases (W&B)** for tracking and hyperparameter tuning.
- Aiming to develop a **lightweight CNN-ViT hybrid backbone** optimized for **mobile deployment**.

**Full-Time Research Assistant**, *University of North Texas* April 2025 – Present

- Researching **3D human pose estimation** from point clouds using **transformer-based architectures**.
- Implemented and evaluated **PointTransformer** on the **ITOP dataset** ( 100K frames, 15 joints).
- Exploring **spatio-temporal attention** to model frame-wise relationships in sequential point clouds.
- Prototyping an end-to-end **point-cloud-to-3D skeleton** pipeline with attention-based feature aggregation.
- Experimenting with **CUDA kernels** and **C++ modules** to accelerate local embeddings and k-NN queries.
- Conducting **publication-oriented research** analyzing transformer scalability and feature expressiveness for 3D geometry.

**Associate Consultant**, *KPMG Global Services Private Limited* Jan 2022 – Jan 2023

- Developed **web applications** to automate **transfer, requisition, and order** workflows using **low-code** platforms.
- Built **UI interfaces**, **workflow models**, and **databases** supporting operations across multiple countries.
- Optimized **process flows** to reduce maintenance overhead and enhance **reporting efficiency** across global teams.

**Project Engineer**, *Wipro Limited* June 2019 – Jan 2022

- Developed **web applications** by migrating **six high-risk Excel-based financial tools** using **low-code**.
- Built **frontend components**, **backend workflows**, and managed **deployments** through **CI/CD pipelines**.
- **Demoed applications**, mentored **5+ juniors**, and supported **requirement gathering** with clients and stakeholders.

## Technical Skills

**Languages & Frameworks:** PyTorch, Python, C/C++, CUDA, SQL, TFLite

**Deep Learning Architectures:** MLP, CNN, RNN, LSTM, PointNet, PointNet++, Point Transformers, ViT, vLLM, LLM

**3D Algorithms:** FPS, KNN, KD-Trees, DBSCAN, Downsampling, Statistical Outlier Removal

**Libraries:** NumPy, Pandas, Open3D, Matplotlib, Tensorboard, Seaborn

**Developer Tools:** Git, GitHub, Jupyter Notebook, VS Code, Docker, CMake, gdb, pdb, AWS

## Education

**Master of Science in Computer Science**, University of North Texas Jan 2023 – Dec 2024

**GPA:** 4.0/4.0

*Relevant Courses:* Machine Learning, Data Mining, Software Development for AI

**Bachelor of Technology in Electronics & Communication**, GCET Aug 2015 – May 2019

*Relevant Courses:* Computer Architecture, C Programming, VLSI