


Janaki Ram Puli

Software Developer, Oracle

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Interests: Deep Learning and Machine Learning, Distributed Systems, Agentic systems

Education

B.Tech, Computer Science Indian Institute of Technology (IIT), Bombay CGPA - 8.31 Aug'20 - May'24

Teaching Assistant PH 107: Quantum Physics and Applications, PH 108: Electricity and Magnetism

- Assisted with course instruction and provided academic support for more than 45 undergraduate students.
- Graded assignments, addressed student queries, and contributed to course content and exam preparation.

Work Experience

Oracle

Jul 2024 - Present

Software Developer (IC2) – MicroTx Agentic Workflows

- Evaluated workflow execution engines (Conductor, Temporal, Restate, ...) and led adoption of an open-source orchestrator, analyzing consistency, failure recovery, and scalability trade-offs.
- Extended the orchestration platform with AI-native tasks and service connectors, enabling LLM-driven agentic workflows coordinating long-running microservice operations.
- Implemented durable workflow execution using persistent state storage, retries, compensation (saga-style recovery), and idempotent task handling across distributed services.
- Currently hardening the platform with focus on security and performance to improve reliability, low-latency scheduling, and high-throughput task processing for long-running workflows before release.

Internships

Oracle

Summer 2023

Software Developer – MicroTx Distributed Transactions

- Designed and integrated **LRA/Saga** patterns for reliable distributed transaction coordination across microservices.
- Developed SDKs for distributed transaction protocols **XA (two-phase commit)**, **LRA (long-running transactions)**, **TCC (try-confirm-cancel)** with native Spring Boot integration.

HeltarAI

Summer 2022

Software Developer

- Built a customer communication platform integrating Meta's WhatsApp Cloud Graph API for automated workflows.
- Developed real-time bidirectional messaging using WebSockets, enabling low-latency client-server communication.

Projects

Language Modeling from Scratch (CS336)

- Built foundational language modeling components from the ground up, implementing Byte-Pair Encoding (BPE) tokenization and autoregressive transformer blocks.
- Implemented custom **CUDA** kernels for core tensor operations and built **FlashAttention** using **Triton** to optimize memory efficiency and training throughput.

Deep Learning for Computer Vision (CS231n)

- Built fundamental machine learning classifiers (k-NN, SVM, Softmax) and a two-layer neural network from scratch using NumPy to process the CIFAR-10 dataset.
- Implemented modular deep learning components, writing custom forward and backward passes for Convolutional Neural Networks, Batch Normalization, and Dropout.
- Developed an image captioning system using RNNs and LSTMs, and implemented advanced vision/self-supervised and generative methods including **SimCLR** (contrastive learning), **CLIP**, **DINO**, and **DDPM**.

Natural Language Processing with Deep Learning (CS224n)

- Analyzed and visualized **Word2Vec** and **GloVe** embeddings, evaluating semantic and syntactic structure through similarity and analogy-based probes.
- Developed a sequence-to-sequence **Neural Machine Translation (NMT)** model using RNN encoder-decoder architecture with multiplicative attention.
- Implemented a **Transformer** model from scratch, including multi-head self-attention, positional encoding, and feed-forward blocks for downstream NLP tasks.

Adversarial ML: Evasion Attacks on Classifiers

Research Assistant IITB, Advisor: Prof. Virendra Singh

B.Tech thesis

- Researched adversarial machine learning, focusing on evasion attacks in security-critical domains.
- Implemented gradient-based attacks on **SVMs and linear models**, for error-generic and error-specific evasion.
- Evaluated attacks on **MNIST**, demonstrating vulnerabilities and exploring defenses such as adversarial training.

Multi-Language Question Answering System

Guide: Prof. Pushpak Bhattacharya

- Designed and implemented a **multi-lingual QA system** supporting Indian languages using extractive techniques.
- Fine-tuned **BERT** on the **SQuAD dataset** with 100k+ question-answer pairs from 500+ Wikipedia articles.
- Achieved strong evaluation results with an exact_match score of 80% and an F1 score of 88%.

Eye Health Monitor - Low Cost Wearable Device

Project: Koita Center for Digital Health, IITB

- Prototyped a low-cost wearable device using **ESP32-CAM** and macro lens for capturing ocular images.
- Collected and curated datasets of eye diseases (cataracts, glaucoma, uveitis, bulging eyes, ...) to train models.
- Designed and trained **CNN and Vision Transformer (ViT)** architectures for automated eye disease classification.

Scholastic Achievements

- Achieved **All India Rank 199** in Joint Entrance Examination (JEE) Advanced among 150,838 candidates.
- Secured **State Rank 18** in AP EAMCET out of 2.72 lakh candidates (conducted by APSICHE).
- Achieved **State Rank 35** in TS EAMCET out of 1.43 lakh candidates (conducted by TSCHE).
- Secured **All India Rank 40** with 99.94 percentile in JEE Main (B.Planning).
- Secured 99.96 percentile and **All India Rank 497** in JEE Main among 1.02 million candidates.
- Selected among India's **Top 450** students for the Indian National Physics Olympiad (INPhO).
- Selected among India's **Top 330** students for the Indian National Astronomy Olympiad (INAO).
- Selected among India's **Top 800** students for the Indian National Chemistry Olympiad (INChO).

Patents

Native Integration of Retrieval-Augmented Generation (RAG) pipelines in durable workflows

System and Method for Agentic Task Execution in MicroTx Workflow Engine

Multi-Agent Orchestration with Dynamic Workflow Composition using Agentic planner in workflow

Transaction System Task for Distributed Transactions in MicroTx Workflow

Extracurricular Activities

- Participated in Oracle Volunteer activities, supporting community initiatives and promoting social responsibility.
- Successfully completed an academic year-long fitness course under the **NSO, IIT Bombay**.
- Competed in volleyball and cricket tournaments conducted by TelCA Sports Council, IIT Bombay.
- Completed two years of **Sanskrit** study at the intermediate level, earning an **A1** grade.