

# HARSHIT DHANKHAR

San Diego, CA

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## Education

University of California San Diego (UCSD)

Fall 2025 – Expected Spring 2027

Master of Science in Computer Science

San Diego, CA

Indian Institute of Technology (IIT) Patna

2021 – 2025

Bachelor of Science in Mathematics and Computing; **CPI: 8.34/10.0**

Patna, India

- **Coursework:** Data Structures, Algorithms, Operating Systems, Software Engineering, Deep Learning, Computer Vision, Data Science, Convex Optimization, Probability Theory, Statistics, Theory of Computation, Numerical Linear Algebra

## Technical Skills

**Languages:** Python, C, C++, Java, TypeScript, JavaScript, MATLAB, R, SQL, LaTeX, Bash

**Technologies:** PyTorch, Tensorflow, scikit-learn, LangChain, LangGraph, RLHF, Pinecone, FAISS, FasAPI, GraphQL, REST, React, Redis, Docker, Azure ML, MLOps, LLMOps, AWS, MongoDB, PostgreSQL, Node.js, Git, Stable-Baselines3

## Experience

AnyFeast

Feb 2025 – August 2025

AI Engineer

London, UK

- Deployed a zero-touch **ETL pipeline** that automates recipe attribute extraction using **agentic AI**, optimizes local ingredient retrieval via a user-proximity-based **caching algorithm**, and enriches recipe's instructions with a **LangChain-powered RAG module**.
- Implemented a **recommender system** using hybrid filtering approach to personalize users' feed, increasing user click-through rate by over **30%**.

LAMSADE, Université Paris-Dauphine - PSL

May 2024 – Oct 2024

AI Lab Summer Intern [Code]

Paris, France

- Developed a novel Nested Monte Carlo Search-based algorithm for optimizing **qubit routing** in quantum circuits.
- Significantly outperformed industry-standard tools, achieving up to **10.55%** improvement in circuit depth compared to state-of-the-art algorithms from IBM (Qiskit) and Google (Cirq).
- Work accepted at **AAAI 2025** (QC+AI).

Computer Systems Group, IIIT Hyderabad

Dec 2022 – Dec 2023

Research Intern [Code]

Hyderabad, India

- Pioneered an **RL-based framework** (QGI) for online learning of indexable policies in **Multi-Armed Bandits**, demonstrating its effectiveness in pre-emptive job scheduling.

## Projects

Alloc8 - Dorm room Allocation Portal | MERN

[Demo] | [Website]

- Led the development of a portal to streamline dorm room allocation for **3000 students across 1400 rooms** at IIT Patna, as part of a technical initiative to enhance student life in my role as Senior Year Technical Secretary.
- Designed a user-friendly interface, backend deployed on **VPS with load balancing** to manage high traffic; implemented **Redis-based locks** for secure room selection and performed roommate pairing using **Spherical K-Means** clustering.

Deep RL for EV Charging Path Optimization | Python, RL Agents, OpenAI Gym

[Code]

- Designed and implemented a **PPO-based DRL agent** to optimize Electric Vehicle path routing for charging station selection, reducing cumulative driver costs by an average of **74.19%** across different routing strategies.
- The developed model is currently under review at *IEEE Transactions on Reliability*. [Paper]

QE Model-based Training for Pronoun Translation | NLP, Huggingface Transformers, Machine Translation

[arXiv]

- Engineered a novel framework leveraging Quality Estimation (QE) models to enhance pronoun translation quality in context-aware MT systems, resulting in a **24.06% improvement in COMET score** over the baseline.
- Paper detailing the iterative feedback training framework is under review at *WMT Research 2025*.

## Publications

Tabular and Deep Reinforcement Learning for Gittins Index | WiOpt 2025

[DOI]

- Developed a novel Q-learning based algorithm and its Deep-RL counterpart for estimating Gittins indices in Multi-Armed Bandits (MABs), surpassing state-of-the-art methods in terms of memory (**~50%**), runtime (**~10%**), and convergence.

Analysis of Carbon Emission in SAARC Countries using Attention-based LSTM | IEEE BigData 2023

[DOI]

- Implemented a framework for deploying Deep Learning models (GRU, LSTM, Attn-LSTM, etc) to **forecast CO<sub>2</sub> emission** in SAARC countries.