

Darpan Jain

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EDUCATION

Master of Science, Electrical and Computer Engineering, University of Southern California
Major in Machine Learning and Data Science — GPA - 3.92

Bachelor of Engineering, Electrical Engineering, University of Pune

WORK EXPERIENCE

Lead Machine Learning Engineer, Crunchyroll (Sony Pictures Entertainment) Jan 2024-Present

- As the Founding Machine Learning Engineer responsible for defining the company's AI vision and technical roadmap, leading cross-functional teams to deliver foundational machine learning and generative AI capabilities.
- Led end-to-end development of the Personalization Recommendations platform for 15M+ global anime fans, building KPI-driven, two-stage recommendation systems (retrieval + ranking), incorporating user behavior modeling, and multimodal embeddings to optimize homepage ranking, content discovery, and search relevance.
- Developed a centralized AI Platform to fine-tune, integrate human feedback in LLMs, evaluate, and host LLMs and multimodal models, to build internal workflows like metadata enrichment and multilingual synopsis generation.

Lead Machine Learning Engineer, Pixstory March 2023-Jan 2024

- Spearheaded Pixstory's RAG-based Conversational Search, providing precise user query responses grounded in verified knowledge bases. Deployed in production within 5 months, serving queries for over 72K monthly users.
- Implemented systems to mitigate hallucination and misinformation from self-hosted Large Language Models (LLMs) generations through rigorous evaluations and re-ranking trusted sources for reliable information retrieval.

Applied Research Engineer, USC Information Sciences Institute Jan 2022-May 2023

- Led development of conflict resolution dialogue agents for DARPA's Civil Sanctuary program at USC-ISI's [CUTE LAB NAME](#) (headed by Prof. Jon May), as an Applied Researcher in the [Natural Language group](#).
- Designed and deployed scalable dialogue agents to mitigate toxic behavior on social media (Reddit) using a system of pre-trained and fine-tuned LLMs, achieving an 85% true positive rate in moderating over 15k posts in French and German; [the research](#) was published and presented at the 2024 NAACL main conference.

Warner Bros. Discovery

Software Development Engineer - Machine Learning Sep 2020-Aug 2021

- Enhanced user engagement on Discovery Plus (D+) as part of the *Personalization and Recommendations* team. Conducted A/B tests to optimize homepage carousel ranking and recommendations. Also built large-scale ETL pipelines for learning from event streams.
- Led the development of server-side ad-insertion SDKs for Android and Web, boosting ad revenue for Eurosports in Europe, while also supporting the establishment of WBD's AdTech Center of Excellence in India.

Machine Learning Engineer, (formerly AdSparx Inc.) Mar 2019-Sep 2020

- Led the development of the MiDAS project, an automated system that replaces Advertisements in linear broadcast streams and dynamically replaces them with personalized ads. Containerized deployments serving SSAI across 40+ multilingual channels. AdSparx was acquired by Discovery Inc. in September 2020.

PUBLICATIONS

[Can Language Model Moderators Improve the Health of Online Discourse?](#)

H Cho, S Liu, T Shi, **Darpan Jain**, B Rizk, Y Huang, Z Lu, N Wen, J Gratch, E Ferrara, J May

North American Chapter of the Association for Computational Linguistics (NAACL 2024), Main Conference

CONSULTING EXPERIENCE

Lead Research Engineer, USC Dornsife — Mind and Society Center Jan 2024-Present

- Spearheaded the design and implementation of a comprehensive end-to-end evaluation system for teacher sessions within the [Pathways-to-Success](#) program (a federally funded program by the U.S. Department of Education). The system uses self-hosted open-source models for audio extraction and speech-to-text transcription, coupled with advanced language models (LLMs) for fidelity assessment, employing custom evaluation metrics for fidelity evaluation and also providing real-time constructive feedback to teachers.

Machine Learning Lead, Defeat Covid-19 Mar 2020-May 2020

- Co-founded a non-profit aimed at providing support to authorities and the public during the COVID-19 pandemic, with features such as real-time monitoring dashboards, identification of high-risk infection areas, and a multilingual closed-domain QA chatbot.

TECHNICAL SKILLS

Languages: Python, Golang, SQL, JAX, Scala, Java, C++, R, JavaScript

NLP & Machine Learning: PyTorch, TensorFlow, Scikit-learn, LlamaIndex, NLTK, SpaCy, HuggingFace Transformers, Sagemaker, DeepSpeed, safetensors, Langchain, FastAPI

Frameworks & Technologies: Git, RESTful APIs, gRPC, Linux, AWS, GCP, Azure, Apache Airflow, Databricks, ONNX

Model Deployment & CI/CD: Model Serving (TorchServe, TFServing), MLOps (Weights & Biases, MLFlow), CI/CD (Docker, Kubernetes, Ray, Kubeflow, Terraform, Jenkins)

Data Engineering & Monitoring: Vector Stores, SQL, Kafka, Apache Spark, Elasticsearch, DynamoDB, Redis, Splunk, Datadog, Prometheus, Grafana