Akash Deep Singh

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Education

University of California, Los Angeles (UCLA) — Los Angeles, CA
Ph.D. in Electrical and Computer Engineering — *Sep. 2018 – Mar. 2023*
M.S. in Electrical and Computer Engineering — *Sep. 2018 – Mar. 2020*

IIIT-Delhi — New Delhi, India
B.Tech in Electronics and Communication Engineering — *Aug. 2014 – May 2018*

Experience

Applied Scientist, Machine Learning — April 2023 – Present
Ownwell Inc — *Austin, TX*

- Led the development and implementation of models for predicting property taxes, marketing conversion, and revenue estimation
- Developed vertical Large Language Model (LLM) agents to automate workflows: document processing, customer verification, customer support, case evaluation
- Collaborated with cross-functional teams—including product, engineering, data science, and UX—to integrate AI technologies into products, ensuring alignment with business goals and user needs.
- Fine-tuned Large Language Models (LLMs) for specialized tasks, achieving significant performance gains through meticulous prompt engineering and retrieval-augmented generation (RAG).
- ML Stack: LLMs, Transformers, Multi-modal Fusion, Gradient Boosting, RAG, Fine-tuning
- Tech Stack: Python, PyTorch, Scikit-learn, AWS

Applied Scientist Intern — June 2022 – September 2022
Amazon — *Seattle, WA*

- Developed ML models to detect fraud from user behavior patterns (mouse, keyboard gestures) and browsing data for the Buyer Risk Prevention (BRP) Team. Improved the performance of the production model by 6.96%.
- ML Stack: Temporal models such as LSTMs, multi-modal fusion, gradient boosting, and temporal self-attention
- Tech Stack: Python, PyTorch, Scikit-learn

Research Intern — June 2021 – August 2021
Nokia Bell Labs — *Remote*

- Developed a self-supervised framework for extracting features from RF+camera data using contrastive learning. The framework outperformed its supervised counterpart on downstream tasks even with less training data – accepted at IEEE ICC 2022.
- ML Stack: Self-supervised learning, contrastive learning, CNNs, multi-modal fusion, and self-attention
- Tech Stack: Python, PyTorch, Scikit-learn

Technical Skills

Programming Languages:
Proficient: Python
Prior Experience: MATLAB, C, JavaScript

AI & Machine Learning:
General Frameworks: PyTorch, scikit-learn
LLM: Transformers, Hugging Face libraries, model fine-tuning, prompt engineering
Key Skills: LLM agent pipelines, predictive analytics, NLP pipelines, model training, evaluation, deployment

Selected Publications (Google Scholar)

[CVPR 2023] Depth Estimation from Camera Image and mmWave Radar Point Cloud

[Nature SR 2022] Temporal convolutional networks and data rebalancing for clinical length of stay and mortality prediction

[Usenix Security 2021] I Always Feel Like Somebody's Sensing Me! A Framework to Detect, Identify, and Localize Clandestine Wireless Sensors

[mmNets 2019] RadHAR: Human Activity Recognition from Point Clouds Generated through a Millimeter-wave Radar

[ACM Sensys 2020] UWHear: Through-wall Extraction and Separation of Audio Vibrations using Wireless Signals

[JAMIA 2021] On collaborative reinforcement learning to optimize the redistribution of critical medical supplies throughout the COVID-19 pandemic

[ICC 2022] Self-Supervised Radio-Visual Representation Learning for 6G Sensing