

# SHAURYASIKT JENA

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## EDUCATION

### University of Southern California

Los Angeles, CA, USA

*Master of Science in Computer Engineering* – **GPA: 3.9/4.0**

Aug 2022-May 2024

- *Research Assistant, DILL Lab:* Integrating multimodal RAG, LLaMA, and LLaVA into an LLM with a text-image shared embedding space, testing co-pilots for low-documented domains using lab training transcripts.

### Indian Institute of Technology (IIT), Delhi

New Delhi, India

*Bachelor of Technology in Electrical Engineering* – **GPA: 8.5/10.0**

Jul 2018-May 2022

*Specialization in Cognitive And Intelligent Systems* – **SGPA: 9.0/10.0**

- *Teaching Assistant:* For the graduate level courses *Advanced Machine Learning*, and *Special Topics in C & IS*

## SKILLS

**Languages** Python, R, MATLAB, C++, C, Java, OCaml, CUDA, Bash, L<sup>A</sup>T<sub>E</sub>X, HTML, CSS, SQL

**Softwares** Git, PyTorch, TensorFlow, JAX, Kubernetes, Docker, HuggingFace, NLTK, AWS, NumPy, Pandas

**Coursework** Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing, Computer Vision, Parallel & Distributed CPU/GPU computing, Data Structures and Algorithms, Computational Neuroscience, Computer Networks, Computer Networks, Probability

## EXPERIENCE

### Big Vision LLC | Applied Research Intern | San Diego

May 2023-Aug 2023

- **Fine-tuned** PaddleOCR improving English OCR to >99% accuracy, 15% better readability for sports strategies
- Pioneered **fine-tuning** of PaddleStructure for machine-readability of text structures, reaching 90% accuracy

### Clemson University | Research Intern | Remote

May 2021-Jan 2022

- Developed **LSTM** model to estimate soil moisture at multiple depths in parallel, reducing RMSE loss by <4%
- Extrapolated SM data to generate a gradient map with spatial and temporal resolutions of 1-sq.km and 1-day

### Torch Investment Group | Quantitative Research Intern | Singapore

Jun 2021-Oct 2021

- Refined **LGBM**, **RNN** models to predict annual stock returns, surpassing previous model performance by ~5%
- Formulated a CAGR-based investment algorithm, yielding over a 10% increase in annual returns across 30 stocks

### Tech Mahindra | Machine Learning Intern | Pune, India

May 2020-Jul 2020

- Engineered YOLOv4 model to monitor COVID protocols in workplaces, with 85% accuracy in violation detection
- Implemented a parallel Real-Time Streaming Protocol of the detection-alert model to span all the office cameras

## PROJECTS

### Prompt-based Press Conference Video Editor

- **Winners** in Twelve Labs **Multimodal AI Hackathon**, deployed an industry-grade prompt-based video editor
- Utilized **AWS S3**, **Transcribe**, **Rekognition** for efficient video storage, transcription, speaker identification.
- Achieved highest-accuracy clip extraction among 20+ teams, per human judges' evaluation, through extensive prompt engineering and feedback processing with GPT-4o API, ensuring objectivity and precision.

### Data-to-Text Generation with Minimal Supervision

- **Unsupervised cycle-training** of LLMs initialized with 100 supervised samples for data-to-text **generation**
- Improved performance over fully **supervised training** with higher ROUGE, BLEU, METEOR scores by ~1%

### Cognitive Load Estimation

- Devised a **DNN** model to estimate cognitive load from HCI data, outclassed best existing performance by 5.2%
- Established benchmarks for 4 classifiers with the previously best ensemble of 8 **GBDT** models as a baseline

### Recreating Scotland Yard with Deep Q-Learning

- Coded computer player agents of Scotland Yard game with Deep Q-Networks based on **actor-critic algorithm**
- Enhanced in-game intelligence of agents with **adversarial training** and **Monte-Carlo Tree Search** by >40%

## LEADERSHIP AND INVOLVEMENT

❖ **Secretary, Quizzing Club, IITD:** Led a team of 14, organized intra-/extra-mural quizzes, won Best Club

❖ **English Language Mentor, IITD:** Tutored 6 underprivileged freshmen to enable better class participation