Darsh Thakkar

dkthakkar@wisc.edu | Madison, WI | +16082395713 | LinkedIn | Website

Experience

AI & Software Engineer Intern | LexLegis AI | Mumbai, India **May – July 2025**

- Developed a fully offline AI legal assistant with chat, OCR, document analysis, multilingual translation, and semantic search, ensuring complete data privacy.
- Built cross-platform solutions in C++, Python, and QML, integrating LLMs via llama.cpp and Llama Server for fast, local inference.
- Managed document indexing, retrieval (RAG + BM25), and intuitive interaction across Windows, macOS, and Linux.

Software Development Internship | Yodaplus | Mumbai, India **June – Aug 2024**

- Tested the AI software of GenRPT for bugs and provided solutions to the backend team by reviewing SQL queries. Utilized Pandas to create code for data cleaning and ensured data quality.
- Used Python, APIs, PostgreSQL, and ReactJS to develop a Library Management System.

Projects

Chronos – AI Voice Assistant for Hands-Free Computer Control

- Developing a cross-platform, offline AI assistant that enables full hands-free computer interaction through speech recognition, natural language reasoning, and automation.
- Integrates Whisper.cpp for real-time transcription, a local Mistral GGUF model for reasoning and intent parsing, and Python modules for task execution (apps, system actions, web, clipboard).
- Packaged into a standalone executable with PyInstaller for local deployment. Currently expanding Chronos into a lightweight AI-driven operating system with modular extensions.

YouTube Gesture Remote

- Developed a real-time, offline, webcam-based gesture controller for YouTube.
- Implemented hand pose recognition to control playback (play/pause, volume, fullscreen, navigation).
- Built cross-platform functionality with on-device processing and an on-screen HUD.

Reinforcement Learning Agent (Q-Learning & SARSA)

- Implemented Q-Learning with ε-greedy exploration and extended with SARSA + decaying ε.
- Trained and evaluated in CliffWalking-v0, visualizing policies and returns.
- Compared on-policy vs off-policy learning, achieving near-optimal navigation.

LeNet-5 CNN for Image Classification

- Recreated LeNet-5 in PyTorch and trained on CIFAR-100.
- Counted parameters, benchmarked validation accuracy, and tested hyperparameter variations.
- Experimented with custom CNN architectures for scene recognition.

Education

University of Wisconsin-Madison | Madison, WI **2023 - 2027**

Bachelor of Science: Computer Science and Data Science

- Languages: English, Hindi, Gujarati, Spanish (basics)
- Dean's List in Fall 2023, Fall 2024
- GPA: 3.5

Skills

Programming Languages: Python, C++, Java, JavaScript, SQL, R, C
AI/ML & Computer Vision: PyTorch, TorchVision, scikit-learn, OpenCV, MediaPipe, Whisper.cpp, CTranslate2, Speech Recognition, NLP, CNNs (LeNet-5), Reinforcement Learning (Q-Learning, SARSA), Gymnasium, Time Series Modeling, Matplotlib
LLMs & Retrieval: Mistral GGUF, llama.cpp, Llama Server, RAG, Embeddings, BM25, Contextual Reasoning, Tesseract OCR, GGUF
Frameworks & Systems: Qt/QML, ReactJS, REST APIs, FFmpeg, PyInstaller, PyAutoGUI, SoundDevice, Send2Trash, CMake, Git
Data & Databases: Pandas, NumPy, PostgreSQL, SQLite

Certifications

Supervised Machine Learning: Regression and Classification, authorized by DeepLearning.AI and Stanford University