Pavan Kumar Reddy Kunchala

Email: Pavankunchalapk@gmail.com — **LinkedIn:** pavan-kumar-reddy-kunchala —
GitHub: Pavankunchala — **Portfolio:** pavankunchalapk.wixsite.com/resume —
Phone: +1 909 402 5512

Objective

Passionate and innovative Computer Vision Engineer with extensive experience in deep learning, generative AI, and LLM technologies. Adept at designing and implementing scalable computer vision and natural language processing solutions with a proven track record in developing state-of-the-art models for real-world applications. Seeking opportunities to contribute cutting-edge research and drive transformative products.

Education

California State University, San Bernardino, USA **Aug 2023 – Present**
Master of Science in Computer Science
Relevant Courses: Neural Networks, Artificial Intelligence, Deep Learning, Computer Vision

Lovely Professional University, India **July 2018 – Apr 2022**
Bachelor of Technology in Computer Science
Relevant Courses: Neural Networks, Artificial Intelligence, Deep Learning, Computer Vision

Vikas The Concept School, Hyderabad, India **Mar 2015 – Apr 2016**
Senior Secondary School, CBSE

Technical Skills

Programming: Python, C++, C#, HTML
Machine Learning & AI: Deep Learning, Generative AI, LLMs, Reinforcement Learning, Retrieval-Augmented Generation (RAG), Fine-Tuning, Neural Radiance Fields (NeRFs)
Computer Vision: OpenCV, PyTorch, TensorFlow-Lite, Kornia, Mediapipe, Open3D, PyTorch3D
Development & Tools: Linux, Git, GPUs, Unity 3D, Transformers, Diffusers, DSPY, LangChain, Llama-Index

Experience

TCCentral (HeyStack) **Feb 2024 – Present**
Computer Vision Engineer

- Developed AI-powered models for card analysis, enhancing classification, segmentation, and serial number detection.
- Managed annotation workflows and optimized production-ready computer vision models for robust real-world performance.

- Collaborated with cross-functional teams to integrate deep learning solutions into scalable systems.

Berkeley Synthetic **Jan 2023 – Aug 2023**
Generative AI Researcher

- Designed and implemented AI animations using Stable Diffusion, ControlNet, and EbSynth.
- Researched and prototyped Text-to-3D models using NeRF-based architectures for advanced 3D reconstruction.

FS Studio **Oct 2021 – Apr 2022**
R&D Computer Vision Developer

- Developed VR hand-tracking modules using MRTK and Oculus Interaction to enhance immersive experiences.
- Created and refined gesture-based interaction techniques to improve usability.

Nosadir **Apr 2021 – Oct 2021**
Deep Learning Engineer Intern

- Built and integrated scalable object tracking and detection models with optimized inference.
- Developed low-latency, high-performance systems for real-time computer vision applications.

Big Vision LLC **Jan 2021 – Mar 2021**
Computer Vision Intern

- Contributed to developing educational content for the OpenCV AI course series.

Preflet (Freelance) **Jan 2021 – Apr 2021**
Deep Learning & Computer Vision Engineer

- Developed a face recognition model using Single Shot Detection, enhancing security applications.
- Deployed the solution to edge devices and mobile platforms, ensuring real-time performance.

Projects

Law Compass
Developed an end-to-end legal case management platform featuring a state-of-the-art Retrieval-Augmented Generation (RAG) system for generating detailed responses with source citations. Website: lawcompass.info

CSV File Analyzer with CrewAI
Automated dataset analysis, cleaning, and visualization using AI-powered LLMs to streamline data-driven decision-making. GitHub Link

Medical and Coding Chatbots
Developed fine-tuned AI chatbots for specialized medical and coding assistance using DSPY and Llama-Index, implementing Grounded RAG solutions for improved accuracy. Medical Chatbot — Coding Chatbot

Bill Splitting OCR with AI
Automated bill parsing with OCR integrated with Llama 3.2 Vision and CrewAI, delivering detailed reports and cost-splitting analysis. GitHub Code — Markdown Report

CrewAI & Llama Index Documentation Assistant
Built a hybrid retrieval chatbot for documentation assistance, leveraging Crawl4AI for efficient data scraping and retrieval. Crew AI Documentation Bot — Llama Index Documentation Bot

LLM Testing Repository
Created a comprehensive benchmarking repository for local LLMs, including various RAG implementations for performance evaluation. LLM Test Repo

Work Showcase
Compilation of AI and computer vision projects such as Image-Resizing, Instant NeRFs, and Face Swapping, demonstrating end-to-end development and deployment. GitHub Showcase

Instant NeRFs & AI-Powered Gym Tracker

- **Instant NeRFs:** Converted 2D images and videos into interactive 3D scenes using custom dataset creation and optimized rendering techniques.
- **AI-Powered Gym Tracker:** Developed a real-time fitness tracking app utilizing human pose estimation (OpenCV and Mediapipe), age-gender detection, and personalized exercise analytics.

Face Swapping with Deep Learning
Implemented a deep learning solution for face swapping by integrating convolutional neural networks and style transfer techniques for seamless results. GitHub Link

Generative Art using Stable Diffusion
Created artistic visuals using text-to-image models and style transfer algorithms to explore innovative applications of generative AI. GitHub Profile