

Parinitha Ramesh Naidu

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November 2024

Respected Sir/Madam,

Holding a master's degree in AI with distinction from the University of Surrey along with 3+ years of hands-on experience as an AI engineer, I specialize in Computer Vision, Large Language Models, NLP, Machine Learning and Generative AI.

My expertise spans with state-of-the-art models and modern AI pipelines. Driven by a relentless pursuit of solutions, I thrive in challenging environments and am committed to advancing my knowledge in emerging technologies.

I'm seeking a competitive role that pushes my limits, where I can apply my analytical skills and passion for innovation to make impactful contributions.

EDUCATION

Masters in Artificial Intelligence

Feb. 2024

University of Surrey, Guildford, UK

Bachelors in Computer Applications

Sept. 2022

M.S. Ramaiah College, Bangalore, India

EXPERIENCE

Research Software Engineer in AI Chatbot Development

Sept. 2024 – Present

Faculty of Health and Medical Sciences

Zoetis – University of Surrey

Currently working on cutting-edge advancements in Retrieval-Augmented Generation (RAG) frameworks and Large Language Models (LLMs) within the domain of Pet Health and Veterinary Services. Specialized in building intelligent, context-aware chatbots by integrating Agentic RAG techniques using both Llama Index and LangChain approaches. Focused on designing and optimizing LLMs and multimodal models to deliver accurate, dynamic, and context-sensitive responses, enhancing user interaction and real-time information retrieval. Was also responsible for improving model efficiency and scalability, ensuring seamless integration with user interfaces, and contributing to the development of advanced conversational AI systems.

Computer Vision Engineer

Jan. 2024 – July 2024

Freelance

Explored 4D Gaussian Splatting (GS) for real-time, photorealistic dynamic scene representation by integrating spatial and temporal dimensions. Applications included high-fidelity reconstructions. Additionally, contributed to multi-view stereo reconstruction using GS to enable efficient and robust 3D modelling across diverse datasets, with practical uses in photogrammetry, robotics & environmental modelling.

Designed a specialized pipeline leveraging Gaussian Splatting to simulate and render reflective properties of 3D objects. Achieved high-fidelity rendering by utilizing

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pre-trained GS models and PLY files while introducing dynamic viewing angle modifications without retraining. Addressed challenges in rendering highly reflective surfaces by optimizing the GS process and refining spherical harmonics (SH) encoding for realistic reflection simulations. Developed a Python-based framework in PyTorch for precise longitudinal and latitudinal view controls, facilitating seamless rendering for immersive AR/VR applications.

Developed a vehicle re-identification system using computer vision and deep learning, achieving a 98% accuracy rate. Implemented pre-trained CNNs, attention-based loss functions, and vision transformers to address challenges in traffic management and law enforcement. Also utilized advanced 3D reconstruction techniques, including Multi-View Stereo and Depth from Focus, to create high-resolution 3D models. Additionally, I worked with Neural Radiance Fields (NeRF) for 3D scene representation, leveraging positional encoding and differentiable volume rendering to generate new views from existing images.

AI – NLP Developer

Sept. 2023 – Dec. 2023

Coreware – Worked with LLMs and Multimodels.

Developed personality-driven AI responses using LLMs and multimodal models to enhance user engagement and personalization. Implemented Single-Trait and Multiple-Trait Shaping strategies aligned with the Big Five personality traits, enabling dynamic, personality-specific responses. Utilized advanced models like CLIP, VQ-VAE-2, and GPT to shape AI outputs across both text and visual formats, resulting in context-aware interactions that adapt seamlessly to user preferences.

AI – ML Engineer

May 2023 – July 2023

Compact Courses (Deloitte Project) – SETsquared - iKEEP

Led the development of a Digital Marketing Plan for Compact Courses, including Persona Creation and Dynamic Chatbot Engineering. Implemented predictive analytics and NLP-driven partnership proposals, alongside Image Recognition for Social Media Content. Regularly monitored and analyzed performance metrics, contributing to continuous improvements.

Computer Vision Engineer

Feb. 2023 – April 2023

The Department of Surrey Police – SETsquared - iTEK

Executed a pioneering internship focused on developing AI-generated personas to assist in internet crime prevention. Leveraged advanced transfer models such as GPT-4, DALL-E, GANs, and StyleGANs to craft realistic personas across text, image, video, and audio formats. Utilized computer vision techniques, including facial recognition, image segmentation with tools like OpenCV and StyleGAN3, to enhance persona realism and optimize model performance for high-fidelity results. Integrated model performance monitoring to ensure accuracy and compliance with ethical standards in AI-driven crime intervention.

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AI Engineer

Aug. 2021 – Nov. 2022

Technosoft Pvt. Ltd. Bangalore.

Designed and developed cutting-edge AI solutions, achieving measurable improvements in system reliability, customer experience, and content automation. For autonomous systems, developed a predictive maintenance model using time-series analysis and anomaly detection, reducing unexpected downtime by 30% and driving cost efficiencies. Enhanced user experience with an NLP-based sentiment analysis system leveraging BERT and series of ResNet models, hugging face, etc. enabling precise emotional insights from customer feedback and achieving a 20% increase in satisfaction while decreasing response time by 75%. Additionally, created a generative AI model for marketing automation, reducing design workload by 50% and tripling content deployment speed for marketing campaigns.

ARTIFICIAL INTELLIGENCE KNOWLEDGE

Natural Language Processing: Transformer | Artificial Neural Networks | Deep NLP | Word Embedding's | Language Models | Topic Modelling.

Advanced Topics in Computer Vision and Deep Learning: FCN, Stylization | Data Pre-processing and Augmentation | Feature Extraction and Model Architecture with ResNet Models and VIT | MLP and Common Layers | Pytorch Optimization (Criterion, Optimizer, Scheduler) | Neural Networks – ANN, CNN | Digital Image Warping, Filtering and Completion | Image Compositing, Scale & Features.

Applied Machine Learning: Artificial Neural Networks (ANNs), Linear and Logistic Regression, MLP | Gradient Descent and Back Propagation | Convolutional Neural Networks, Applications of CNNs | Action Recognition and Learning from Fewer Labels | Attention and Transformers | Modern Universal Networks like Vision Transformers, etc. | Few-shot Learning, Meta Learning, Introduction to Graph Theory.

AI in Healthcare: Value-Based Healthcare | Understanding Research Questions and Designs and Several Data Sources | Medical Statistics and Linear Regression | Survival Analysis | Categorical Data Analysis and Logistic Regression | Clustering – AI Supervised and Unsupervised and Reinforcement Model Analysis.

For my ongoing and finished projects information please visit – parinitha-cv.github.io

Job Titles: AI Researcher | Computer Vision Engineer | Machine Learning Engineer.

Location Types: On-site | Hybrid | Remote.

Locations (on-site): Surrey, Guildford, England, UK.

Employment Types: Full-time | Part-time | Internship.

Thank you for your consideration,

Parinitha Ramesh Naidu