AYUSHI CHADHA

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Versatile Machine Learning and Generative AI professional specializing in developing domain-specific solutions, advanced retrieval systems and automated workflows. Adept at harnessing cutting-edge AI technologies to deliver innovative business solutions, enhance performance, and streamline processes.

PROFESSIONAL EXPERIENCE

PROPERO CONSULTING **Pune, Maharashtra**
Software Developer FEB **2023-Present**

- ShopiBot- Domain specific Advanced Retrieval application
  - Spearheaded the development of a RAG application for Shopify ecosystem, enabling concurrent multi-source data processing with advanced RAG control flows (dense retrieval, Recursive Abstraction for Tree-Organized Retrieval (RAPTOR), and corrective mechanisms for large context LLMs).
  - Implemented Active RAG using knowledge graphs for agentic workflows, enhancing self-reflection, multi-tool use, and multi-agent collaboration.
  - Developed an Adaptive QA framework for dynamic query analysis and iterative answer construction, ensuring optimal retrieval strategies and accuracy for diverse user inquiries.
  - Currently building and monitoring evaluations using LangSmith, while integrating multi-modal capabilities with CLIP embeddings and transformer models to enhance the domain-specific RAG system's performance.

- Image Generation with Prompt Augmentation and Fine-Tuned Stable Diffusion
  - Developing an end-to-end image generation pipeline combining LLMs and computer vision techniques, incorporating a prompt augmentation module to enhance prompts for image generation based on customer inputs.
  - Integrated the Stable Diffusion model for generating high-quality images from augmented prompts and fine-tuning the model using Google's Dream Booth technique, enabling personalized and domain-specific image generation.
  - Currently working on Image-to-Image Translation and Controllable Generation using GANs and diffusion models, enhancing model precision and user control over generated outputs.

- Integrating Robocorp AI Actions with Langchain Server for Automated Website Evaluation
  - Automated website evaluation using the Analyzer tool with GTmetrix, Google PageSpeed Insights, and Pingdom to generate and email PDF reports. The Langchain server triggers the AI Action Analyzer, leveraging LLM to process inputs, gather data, and produce performance metrics, ensuring users receive critical insights promptly.

- Adaptive Web Scraping for Checkout Flow Automation Testing (Pattern Recognition)
  - Identified structural patterns and extract high-level semantic representations of web pages through DOM tree analysis and tree edit distance algorithms.
  - Classified page elements into abstract concepts like product listings, checkout forms, etc., using transfer learning on previously scraped sites.
  - Dynamically adjusted scraping strategies through a reinforcement learning feedback loop.
  - Integrated an anomaly detection module to surface layout changes and report issues to developers for manual intervention when required.

PROPERO CONSULTING **Pune, Maharashtra**
Software Engineering Intern **AUG 2022-Jan2023**

- Acquired in-depth knowledge and skills in Robotic Process Automation through professional certifications from Robocorp and various different training tasks.
- Collaborated on the development of a Page Speed Analyzer tool that evaluates website performance using industry-standard metrics.
- Contributed to the implementation of automated testing for a client website, enabling efficient detection and resolution of defects throughout the software development lifecycle.

EDUCATION

COLLEGE OF TECHNOLOGY, G.B. PANT UNIVERSITY, Pantnagar, Uttarakhand
Bachelor of Technology-2017-2021

DELHI PUBLIC SCHOOL, DEHRADUN, Uttarakhand
-2014-2016

ADDITIONAL INFORMATION

- Technical Skills: Python, Machine Learning, Natural Language Processing(NLP), NLP with Deep Learning, Generative AI, Retrieval Augmented Generation, Multi model learning, Domain Adaptation, Image synthesis and generation(Computer Vision)
- Tools and Software: Langchain, LlamaIndex, Large Language Models, Diffusion Models, Pytorch
- Languages: Hindi (native), English, Conversational Proficiency in French