Jyotirmay Khavasi

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EDUCATION

Vishwakarma Institute of Information Technology   **2020 – 2024**
B.Tech in Artificial Intelligence and Data Science, **CGPA: 9.34**   *Pune, India*
- **Relevant Coursework:** Discrete Mathematics, Probability and Statistics, Data Structures, Artificial Intelligence, Operating Systems, Database Management, Software Engineering, Cloud Computing

EXPERIENCE

Wolters Kluwer   **January 2024 – Present**
Data Science Intern   *Pune, India*
- Optimized production-deployed **Vision Encoder-Decoder** and **Layout Transformer models** through **batch classification** and **data augmentation** techniques resulting in a **4% improvement** across all metrics. Converted models to **ONNX** format for a **40% reduction** in evaluation time for clients.
- Involved in **Fine-Tuning** Layout Transformer models for classification and **entity recognition** on custom data, enabling accurate **multi-class classification** and precise extraction of information across diverse documents.
- Developed an **OpenCV** based **Table Detection** pipeline utilizing object detection, image segmentation, morphological operations, contour extraction and coordinate geometry to identify, segment and reconstruct tables from PDFs, enabling **accurate extraction of tabular data**.
- Building domain specific **LLM agents** using **Advanced RAG** techniques with **Qdrant VectorDB** through **Llama-Index** framework to provide accurate and contextually relevant responses on custom data.

Google Summer of Code @PyTorch-Ignite   **May 2023 – September 2023**
Open Source Contributor   *Remote*
- Created a template for **Reinforcement Learning** using **Advantage Actor Critic** algorithm, configuring code to efficiently utilize **parallel processing** for spawning multiple environments and handling various Reinforcement Learning tasks, using interchangeable and flexible components of **TorchRL**.
- Researched methods to efficiently **isolate and segment** relevant video sections frame by frame which enabled to extract high-quality input data for the RL model.
- Enhanced **CI/CD pipelines** with GitHub workflows and enabled **Docker** containerization. Improved the configuration by centralizing YAML attributes, allowing command-line overrides, and helped in integrating with Google Fire and Hydra.
- Implemented code refactoring with **Vue.js** tags, enabling template inheritance and resulting in more than **1000-line reduction** across templates.

HCL Technologies   **September 2022 – March 2023**
Research Intern   *Pune, India*
- Worked on a **NLP Model** which extracts Rules from given Text. Software converts and Processes Given Text to output the Mathematical Expressions of the Rules.
- Worked on **custom BERT architecture** which is used for **Named Entity Recognition** with a **Recall of 88%**.
- Employed **Random Forests** for Classification of a given sentence into 'Rule' or 'not Rule' with **92% Accuracy**.

SKILLS

Languages: C++, Python, SQL.
Developer Tools: Git, Docker, Vim, Shell, LaTeX, VS Code.
Technologies: MySQL, PyTorch, Machine Learning, Image Processing, Deep Learning, Natural Language Processing, MongoDB, Neural Networks, Torchvision, Docker, Dockerfile, FastAPI, REST API, LLaMA-Index, Langchain, RAG, VectorDB, Streamlit.
Soft Skills: Leadership, Mentorship, Communication, Analytical Thinking, Teamwork, Problem Solving.

PROJECTS

SEO using Llama-Index for RAG   *LangChain, Llama-Index, GenAI, OpenAI, Q&A, GSC, API*
- **Search Engine Optimization** using **Llama-Index** for Retrieval Augmented Generation based on goals and objectives of companies to generate blogs and content aiming to convert users organically through inbound sales.
- Working on **Google Search Console API** for extraction of clicks and impression data and providing advanced filters through **FastAPI** for **Keyword Analysis**. Providing alerts for significant changes in keyword performance compared to historical data.

Movie Ticket Booking System 🔗   *DJango, MySQL, WebApp, HTML*
- Developed a **WebApp** using Django in Python. Implemented **Backend** Connection using **MySQL** Database. Integrated the frontend with the Backend seamlessly. Integrated Role based login and booking.

LEADERSHIP AND EXTRACURRICULAR

CyberCell VIIT   **Head of Reverse Engineering**
- Spearheaded the Reverse Engineering team at CyberCell VIIT, conducting a successful global Capture the Flag (CTF) event with international team participation, awarding swags and cash prizes.
- Solely managed and delegated tasks to team members for creating, validating, and deploying reverse engineering challenges, ensuring seamless handling of traffic from national and international teams.