Yashwant Krishna Pagoti

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EDUCATION

Indian Institute of Technology Kharagpur   Kharagpur, India
Computer Science and Engineering (dual degree)   *2020 – 2025*

WORK EXPERIENCE

Sprinklr, Inc. | Gurugram, India | *Product Engineering Intern*   *May 2024 – July 2024*
- Developed an end-to-end **Retrieval-Augmented Generation (RAG) pipeline** to extract and organize information from complex documents.
- Extracted different modalities, including **text**, **tables**, and **images**, from PDFs and extracted **structured data from images** using vision LLMs.
- Created **descriptive metadata** for indexing text/image chunks using advanced language models, enhancing data retrieval and searchability.
- Explored and implemented various chunking mechanisms and utilized **FAISS vector store** for effective data indexing and retrieval.

Goldenflitch Studios | Remote | *Unity Consultant*   *August 2023 – November 2023*
- Conducted a comparative analysis and **SWOT** evaluation of over **7+** game engines, assessing them against industry-relevant parameters.
- Addressed custom client requirements, including research on **dynamic mesh generation**, **asset acquisition**, and advising on **Unity licensing**.
- Integrated **GraphQL** API into Unity, overcoming limitations in **Unity WebGL** through custom WebSocket development in JavaScript.
- Contributed to the development of a motor and conveyor belt model adhering to realistic standards, allowing **dynamic mesh generation during runtime** for user flexibility and **mirroring a digital twin** of a real factory setup.

K12 Techno Services Pvt. Ltd. | Remote | *Game Development Intern*   *June 2022 – August 2022*
- Developed a space shooter game using **MVC architecture patterns** and **state machines** to enhance code readability and maintainability.
- Collaborated with a team of **7** members to create an engaging **endless runner game in Unity 3D**, utilizing **GitLab** for version control.
- Coordinated with the team lead and designed **5+** 3D environments with the provided assets.
- Optimized memory management by implementing **addressable assets**, resulting in **improved run-time memory utilization**.

PROJECTS

Attacks and Countermeasures for Secure Implantable Medical Devices   *August 2023 – April 2024*
- Developed and executed a software simulation of **Implantable Cardioverter Defibrillators (ICDs)** using **React** and **SCSS** to accurately model device behaviour and potential vulnerabilities, enabling a thorough demonstration of data manipulation attacks.
- Simulated over **30+** data manipulation attacks on **ICDs** to assess their impact on patient safety, providing insights into their vulnerabilities.
- Implemented **Rhythm ID algorithm** within ICDs to efficiently detect and respond to cardiac arrhythmias, particularly tachycardia.
- Employed a black-box approach to **reverse engineer** the communication protocol between the ICD and device programmer, utilizing **MATLAB** to develop receiver and transmitter programs to intercept the communication channel with a **USRP device** and **antennas**.

Fast and Efficient Semantic Image Retrieval   *January 2023 – April 2023*
- Implemented a semantic image retrieval system utilizing **hierarchy-based semantic embeddings** trained on the **CIFAR-100** dataset.
- Employed **deep hashing** for generating compact representations of input images and enhanced it by utilizing **floating-point hashing**.
- Utilized **AlexNet** architecture for feature extraction, followed by a hashing layer to create compact, continuous representations.
- Created the frontend using **Streamlit**, providing users with an interface to upload images and obtain semantically similar image results.

AWARDS AND ACHIEVEMENTS

- Secured an **All India Rank 1597** in **JEE Advanced 2020** among **1,50,000** and an **AIR 953** in **JEE Main 2020** among **1.5 million** candidates.
- Achieved a rank of **287** in **TS EAMCET-2020**, a state-level entrance exam with participation from over **1,20,000** candidates.
- Played a key role in contributing to our team's success in winning the **bronze medal** at the **Open Soft General Championship 2023**.
- Earned **student membership** in the esteemed **Institute of Actuaries of India** by qualifying the **ACET** January 2021 Examination.

SKILLS AND EXPERTISE

Languages & Frontend Frameworks: JavaScript, Typescript, Sass, C/C++, C#, Java, Python, Lua, Bash, ReactJS, NextJS, Redux, Sanity.io
AI & Machine Learning: LangChain, LlamaIndex, LLM Integration, OpenAI GPT Models, Groq, Prompt Engineering
Databases & Backend Frameworks: PostgreSQL, MongoDB, MySQL, GraphQL, Neo4j, Cypher, Node.js, Express, Django
Platforms & Other Tools: Unity, Unity 2D, Blender, Linux, Git/Github, GitLab, Docker, Photosthop, Illustrator, Figma

VOLUNTARY CONTRIBUTIONS

Computer Graphics Society (CGS) | IIT Kharagpur | *Head of Web Development*   *September 2022 – September 2023*
- Designed and developed the **official website of CGS** using **HTML**, **CSS**, **React** for the frontend, and **Sanity.io** for the backend.
- Mentored and guided **14 junior members** of the society by assigning tasks, evaluating progress, and supporting throughout their journey.
- Actively contributed to the successful organization of **Respawn Game Jam 2022**, hosted by **IITKGP**, **IITK**, and **IITG**: designed the **event logo**, created visually appealing thumbnails, and edited videos for the **Unity workshop series** on YouTube.

Stack Overflow Community Engagement   *May 2022 – present*
- Accumulated an impressive reputation of **2,500** and earned **2 gold**, **9 silver**, and **31 bronze** badges over **3 years** of community engagement.
- Answered **182** questions, reaching an audience of more than **61,000 people**, actively contributing to the Stack Overflow knowledge base.