

PAVAN CHAITANYA PENAGAMURI

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EDUCATION

Purdue University, West Lafayette

Master of Science in Computer Science, **GPA - 4.0**

Indiana, USA

Aug 2023 – Present

- **Relevant Coursework** : Database Systems, Data Mining, Deep Learning, AI-Assisted Software Engineering

Indian Institute of Technology, Bombay

Bachelor of Technology in Computer Science and Engineering

Mumbai, India

July 2017 – May 2021

PROFESSIONAL & RESEARCH EXPERIENCE

Software Engineer | Sprinklr

API & Integrations team | Backend

Gurugram, India

June 2021 – June 2023

- Developed and maintained **REST APIs** and webhook consumption **microservices** leveraging **Java** and **Spring Boot**
- Collaborated with UI team and led backend teams to create **GraphQL** APIs for seamless integration of backend services
- Designed and introduced a novel generic framework to **optimize** webhook consumption setup time and periodic reporting jobs setup time by **10x**, leading to **promotion** to **Senior Software Engineer** position
- Implemented and managed **digital asset management integrations** for **Aprimo & Bynder** engaging **10+ customers**
- Engineered and managed **CRM** integrations for **Salesforce, MS Dynamics, SAP, JIRA and Zendesk** serving **20+ clients**
- Extended Java Instrumentation library named Micrometer, to enable **real-time metrics** publishing to **Elasticsearch** and **Prometheus** for supporting performance monitoring across **12+ teams**

Machine Learning Researcher | Coriolis

Deep Learning Research Collaboration with IIT Bombay

Mumbai, India

Jan 2021 – May 2021

- Customized **SSD Mobilenet** on **50 website** pages, including multiple bank clients, to conduct **logo detection** on phishing webpages to identify original website being emulated

Machine Learning Intern | Ubisoft

Automation R&D Team

Pune, India

May 2019 – July 2019

- Created a deep learning **multilingual NLP** tool to correct misspelled words in gaming sentences across **7+ languages**

KEY TECHNICAL PROJECTS

Code Review Automation with Generative AI | LLM, GPT, RAG, LlamaIndex, Weaviate

- Innovated a novel multi-stage code review generation framework using RAG-empowered off-the-shelf LLMs
- Verified efficacy of proposed approach using LLMs of different capacities (**GPT-3.5, Mistral 7B, Llama 3 70B**)
- Shipped framework as a **Github App** to automatically provide reviews for each code diff patch of a pull request
- Leveraged RAG to boost F1 scores by up to 3% for binary classification and improved precision by 2%-5%

XKCD-style Comic Generation using DPO | PyTorch

- Collected a dataset of 2240 comics by web-crawling and fine-tuned a **Stable Diffusion Model** using LoRA for 50k Steps to generate a comic image given a situation description
- Performed further fine-tuning with **Direct Preference Optimization** on manually labelled (good vs bad) held-out dataset of 580 comics utilizing a RESNET-18 reward model improving CLIP and FID scores by 5%

Gen AI tool for house damage detection | PyTorch, Prompting, GPT-4, LLM, Flask

- Developed **LLM bot** by fine-tuning **BLIP** model on **multi-modal text and image data**, and hosted it on **Hugging Face** via an inference API to generate damage summaries from a small text and house images
- Utilized **few-shot** prompting to produce immediate and long-term house issues and fixes from damage summary

TECHNICAL SKILLS

AI : PyTorch, TensorFlow, Keras, Sklearn, NLP, CV, LLM, RAG, Numpy, Pandas, Matplotlib, Scipy

Programming Languages : C, C++, JAVA, Python, JavaScript, MATLAB, HTML, CSS, BASH, SQL

Tech Stack : Spring Boot, MongoDB, Elasticsearch, Kubernetes, Kafka, Mesos, Jenkins, AWS

Software : Django, Flask, Git, Github, Gitlab, Jira

SCHOLASTIC/EXTRA CURRICULAR ACHIEVEMENTS

- Secured **All India Rank 41** in **JEE Advanced** & **All India Rank 131** in **JEE Main** (2017)
- **Represented India** and received **Honourable Mention** in **International Olympiad** on Astronomy & Astrophysics (2016)