Prahlad Sahu

Generative AI Engineer | M.Tech AI/ML | Full-Stack Developer at Dassault Systèmes | Ex-ISRO Intern | Specialized in LLMs & FEA

Pune • 9644180202 • ps2programming@gmail.com • My Portfolio

Profiles

Prahlad

Ps2program

Technical Skills

Web Development

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Generative AI and Machine Learning

Full-Stack Development Frontend Frameworks (React, Angular, or similar) Backend Development (Node.js, Django, or similar) API Design and Integration

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Software Development

Scalable Application Architecture User-Centered Design Principles Performance Optimization

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Collaboration and Achievements

Collaboration with Organizations (e.g., ISRO) Patent Holder for GSLV Mark 3

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Additional Skills

Simulation Software Development Agile Development Practices Problem Solving and Algorithm Design

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Frontend

React, Redux, React Flow, MFC, WPF

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Backend

Node.js, Django, FastAPI, Flask, Express

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AI/ML

Generative AI, LLMs, Fine-Tuning, LangChain Integration, Agents, ML for Simulation Data

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DevOps & Tools

Docker, Kubernetes, Git, CI/CD, Render

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Databases

SQL (PostgreSQL, MySQL) | NoSQL (MongoDB)

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CAD & Simulation

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SolidWorks API, FEA, Product Structures, Simulation Software

Interests

Guitar & Singing

Certifications

All Certifications

Multi-MNC

2023

Certificates

Awards

Out of Box Thinker

Dassault Systems

March 2024

Recognized for innovative problem-solving and creative solutions.

Publications

Common Bulkhead Tank Design for Cryogenic Stage of an Indian Launch Vehicle

Defence Science Journal

1 January 22

Design interstage replacement for GSLV Mark-III

Languages

JavaScript

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Python

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C++

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C#

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Summary

A results-driven **Generative AI & Full Stack Engineer** with 4 years of experience in building innovative software solutions. Specializes in integrating **AI** workflows, **Generative AI**, and **Full Stack Development** to create scalable applications. Passionate about using large language models (LLMs) to drive user-centered design in complex applications. Collaborative experience with top-tier organizations like **ISRO** and a patent holder for **GSLV Mark-III**.

Experience

Dassault Systèmes — **March 21 - Present**
Senior Software Engineer – Generative AI & Full Stack — Pune

- Pioneered **Generative AI** applications, integrating **LLMs** into **simulation platforms** and **web solutions**.
- Developed scalable **AI-powered chatbots** and simulation tools using **React**, **FastAPI**, and **Docker**.
- Integrated **React Flow** for building dynamic node-based workflows.
- Enhanced performance through **DevOps pipelines** leveraging **Kubernetes**.

Indian Space Research Organization (ISRO) — **2019 - 2020**
Research Scientist Associate — ISRO - LPSC Kerala
Publication

Research Science Associate – GSLV Mark-III Cryogenic Stage

- Published Research Paper on **Common Bulkhead Tank Design**, optimizing structural efficiency
- Awarded a **patent for GSLV Mark-III**, recognized for innovation in aerospace engineering.

Education

NIT Raipur — **2016 -2020**
Mechanical Engineering — B.Tech
8.82 GPA
https://nitrr.ac.in/

BITS Pilani - Work Integrated Learning Programmes — **2024 - 2026**
Machine Learning and Artificial Intelligence — Masters of Technology

Jawahar Navodaya Vidyalaya (JNV) — **2008 -2015**
PCM — 10+12th
88.5 %

Projects

Generative Science
Explore Project

- Developed a **vector database** of all publicly available research papers globally.
- Integrated **Retrieval-Augmented Generation (RAG)** to efficiently retrieve relevant research documents.
- Leveraged **LLMs** to provide context-aware, comprehensive responses to research queries.
- Designed to empower **research scientists** and **innovators** by simplifying access to critical knowledge and insights.

AI-Insight — **2023**
Explore Project

- **Designed a machine learning model** that analyzes previous simulation data to predict outcomes without the need for re-running FEA calculations.
- **Improved simulation efficiency** by reducing computation time and resource usage.
- **Leveraged historical simulation data** to train the model, providing accurate predictions for mechanical, thermal, and fluid simulations.
- **Integrated the model** into existing simulation software workflows, enhancing overall productivity and decision-making speed.

Chat Application Using LLMs and Generative AI
Explore Project

- Designed and developed an intelligent chat application leveraging **Large Language Models (LLMs)** for natural and context-aware conversations.
- Integrated **generative AI workflows** to enhance user interaction and automate responses.
- Deployed the application using **FastAPI**, ensuring scalability and high performance.

Web Application for Simulation Software (Competitor to Ansys Discovery) — **2022 - 2024**
Explore Project

- **Developed a comprehensive web application** for mechanical, thermal, and fluid simulations, competing with Ansys Discovery.
- **Frontend built with JavaScript**, providing an intuitive and responsive user interface for simulation control and visualization.
- **Backend implemented in C++**, enabling efficient and high-performance simulation processing.
- **Hosted on an in-house deployment server**, ensuring secure, reliable, and controlled access to the simulation software.
- **Optimized for large-scale simulations**, offering users a powerful tool for real-time analysis and results.

SolidWorks Code Generation Co-Pilot
Explore Prototype

- Automated CAD model creation using **SolidWorks API** and **LLM using agents and RAG.**
- Created **Vector database and index** for all available API docs on SOLIDWORKS for code generations.

Portfolio Website & Blog
Portfolio

- Developed an interactive portfolio showcasing professional projects, using **React, mkdocs** and **Flask - Blog**

References

Yogesh Pratap Sing
Phd IISC Bangalore

V.K. Gaba
Professor NIT Raipur