# Pallab Saha

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## PROFESSIONAL SUMMARY

Analytically-driven AI/ML professional with 3+ years of experience leading data science initiatives and developing intelligent systems using Python, machine learning, and cloud technologies. Specialized in statistical analysis, predictive modeling, and end-to-end data pipeline development for enterprise AI platforms. Proven track record of leading cross-functional teams to deliver actionable insights from complex datasets and optimize ML model performance. Academically trained in Robotics and Mobility Systems from IIT Jodhpur, with industry-recognized certifications in Azure AI and Google Cloud ML Engineering. Passionate about leveraging advanced analytics and machine learning to solve real-world business challenges and drive data-driven decision making.

## WORK EXPERIENCE

**Sr. Developer** at **Cognizant Technology Solutions** *(Kolkata, WB, India)* Feb 2022 - Present | 3+ years

- Led a 4-member analytics team to develop comprehensive engagement and interaction reporting systems for enterprise AI platforms, implementing statistical analysis and machine learning models to extract actionable insights from user behavior data using Python, SQL, and Azure ML services.
- Designed and deployed end-to-end data pipelines for real-time conversation analytics, user sentiment analysis, and performance optimization of LLM-integrated systems, leveraging Azure OpenAI, TensorFlow, and cloud-based MLOps practices to drive data-driven decision making.
- Applied advanced analytics and predictive modeling techniques to optimize chatbot effectiveness, user satisfaction prediction, and workflow automation success rates, creating interactive data visualizations and automated reporting systems using Python (Matplotlib, Plotly) that improved business intelligence and model performance tracking.
- Developed robust backend systems for conversation logging, duplication filtering, and feedback analysis, implementing machine learning algorithms for continuous model enhancement and automated quality assurance processes.
- Collaborated cross-functionally to align AI/ML capabilities with business requirements, delivering scalable analytics solutions that enhanced user engagement metrics, system transparency, and data-driven insights for executive decision-making.

## CERTIFICATIONS

- **AI-900 Azure AI Fundamentals** Microsoft
- **AI-102 Azure AI Engineer Associate** Microsoft
- **Cloud Professional Machine Learning Engineer** Google

## EDUCATION

**Master of Technology (M.Tech) Robotics And Mobility Systems(IDRP)** 2022 - 2024
**Indian Institute Of Technology (IIT)** (Jodhpur, Rajasthan, India)

**Bachelor of Technology (B.Tech) Mechanical Engineering** 2017 - 2021
**Dr. Sudhir Chandra Sur Degree Engineering College** (Kolkata, West Bengal India) CGPA: 8.35/10

**Senior Secondary (Class XII)** 2016
**Indira Gandhi Memorial High School(CBSE board)** (Kolkata, West Bengal India) Percentage: 62.40%

**Secondary (Class X)** 2014
**Julien Day School(CISCE board)** (Kolkata, West Bengal India) Percentage: 85.40%

## SKILLS

- **Languages & Frameworks:** Python, SQL, Git, Linux, Jupyter
- **Machine Learning & Deep Learning:** Scikit-learn, TensorFlow, Keras, PyTorch
- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn, Plotly

- **Computer Vision & NLP:** OpenCV, spaCy, Transformers, Azure Cognitive Services (Vision, OCR, Speech, Language), Azure Document Intelligence
- **Cloud & MLOps:** Azure AI, Azure ML Studio, Azure OpenAI, Azure Bot Framework, Azure CLI, GCP (Vertex AI, BigQuery ML), MLFlow
- **Tools & Platforms:** Docker, Postman, Power BI, Vertex AI Notebooks, GitHub

## PROJECTS

**3D Localization and Mapping of Ground Vehicle** M.Tech Project

- Engineered a novel MLP-based algorithm for 3D localization and mapping of ground vehicles, advancing accuracy for Advanced Driver-Assistance Systems (ADAS) applications.
- Integrated SELU and Mish activation functions to boost performance, achieving a 2–3% improvement in accuracy, completeness, and depth.
- Leveraged High-Performance Computing (HPC) with PyTorch and CUDA to optimize the Co-SLAM model and reduce processing delays.
- Improved real-time object detection and navigation capabilities through precise depth map reconstruction and faster convergence.
- **Repository:** https://github.com/pallab-saha-git/Own_co-slam

**AI-Powered Book Publication Automation Platform**

- Developed a Flask web application that automates book publication workflows from web scraping to multi-format output generation (TXT, DOCX, PDF, HTML) with automated reporting capabilities.
- Integrated Google Gemini AI for content enhancement and restructuring with configurable processing parameters, implementing human-in-the-loop review workflows for quality assurance and feedback analysis.
- Implemented ChromaDB vector database for storing content embeddings and enabling semantic search operations, leveraging NLP techniques for intelligent content processing and retrieval.
- Built modular REST API architecture with endpoints for multi-step workflow management including real-time processing status, content analytics, and automated pipeline orchestration.
- Developed automated web content extraction using Playwright with screenshot capture, error handling mechanisms, and duplication filtering for dynamic websites.
- **Repository:** https://github.com/pallab-saha-git/Automated-Book-Publication-Workflow-System

**PowerBiz Developer Analytics – AI-Powered Engineering Intelligence Platform**

- Developed a multi-agent AI system using LangChain and LangGraph for engineering performance analysis, integrating GitHub API data with DORA metrics and Slack-based reporting.
- Built agents for data harvesting, diff analysis, and insight narration, using deterministic task orchestration and async pipelines to enable automated developer analytics.
- Implemented code churn evaluation, defect risk indicators, and influence mapping of pull request reviews to support decision-making insights.
- Integrated Slack slash commands for daily and weekly reports, backed by SQLite/PostgreSQL and Matplotlib/Plotly-based data visualization.
- Packaged deployment with Docker Compose, configurable .env setup, and a smoke test script for reproducible environment setup.
- **Repository:** https://github.com/pallab-saha-git/fika-ai-engineering-insights-bot

**Email Workflow Automation with n8n**

- Built a no-code automation workflow using n8n to send dynamic, personalized emails from Google Sheets data via Gmail SMTP.
- Configured local deployment using Docker and ngrok for OAuth callback and webhook stability; tested end-to-end automation across all edge cases.
- Demonstrated real-time integration of Google Sheets, SMTP, and workflow logic using nodes like SplitInBatches and Schedule Trigger.