

Dhiraj Patra

AI/ML Engineer & Cloud Native Architect

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Summary

Diverse sectors including Banking, Finance, Logistics, Renewable Energy, and IoT required expertise in Applied AI, Generative AI, Machine Learning, Data Science and Cloud technologies.

Driven by a strong sense of ownership and a disciplined approach honed through extensive NCC army training, I excel in demanding environments where ambitious projects require more than a typical "employee" mindset.

Leveraged 28+ years of experience to architect and implemented a range of AI/ML solutions, including multi-agentic AI, conversational AI, real-time risk analytics, and patented innovations. This leveraged deep learning architectures (CNN, NLP, RNN, LSTM, GenAI) and technologies like LLMs, RAG, and Agentic AI.

Successfully delivered impactful AI-driven solutions across multiple industries, demonstrating versatility and a proven track record of translating complex AI concepts into real-world applications and patented technologies.

Experience

Senior Project Manager Contract, EY, Pune

June 2024 – currently working

- As a Senior Engineering Lead within Enterprise Risk Tech at BNY Mellon, there was a critical need for rapid development of next-gen real-time risk analytics and backtesting.
- Leading a high-performing team, architecting and implementing cutting-edge Agentic AI, Data Science, Data Analytics, and GenAI Agentic solutions in Azure.
- Delivered pioneering real-time enterprise risk analytics and investment solutions, redefining industry standards within BNY Mellon's strict quality, security and performance. Mentoring team to translate advanced AI concepts into impactful applications.

Staff Software Architect, FTC Solar Inc, Bengaluru

September 2021 – November 2023

- The company sought to leverage cutting-edge technologies like AI/ML, EDGE IoT, Drones, and Cloud for innovative projects.
- I took the initiative to develop a patented AI/ML application and established the foundational requirements and architecture for the company's AI, ML, EDGE IoT, Drone, and Cloud initiatives. Furthermore, I led the system architecture design and oversaw the implementation, including OTA updates, for the company's main product, Voyager.
- Successfully created a patented AI/ML application and provided a robust and well-defined foundation that enabled the company to confidently pursue and develop projects across AI, ML, EDGE IoT, Drones, and Cloud domains, ensuring a clear architectural direction for their flagship product, Voyager, and facilitating seamless updates.

Technical Architect, Accion Labs, Bengaluru

August 2020 – July 2021

- Arlo, an AI smart camera project, faced challenges with efficient video streaming to the cloud.
- Also, a medical image process startup was facing challenges for their efficient image processing and prediction.
- Designed and developed a microservices-based SaaS application on the cloud for medical image analysis. Use predictive analysis, using CNN, Keras analyse medical images like CT scans, MRI images, X-rays, etc., to identify early signs of diseases.
- Architected and developed a serverless architecture in AWS to optimise video streaming from Arlo AI smart cameras to the cloud, addressing scalability and cost-efficiency concerns.
- Developed a robust and scalable cloud solution that significantly improved Arlo's video streaming capabilities and provided a foundation for future growth.

Technical Architect, Impelsys, Bengaluru

May 2018 – February 2020

- Wolters Kluwer's legacy Learning Management System (LMS), built on client-server technology, faced significant challenges when attempting to operate in a cloud environment, hindering performance and scalability.
- Architected and led a small initial team (2 members) to develop a modern microservices-based LMS on AWS, transitioning away from the problematic legacy architecture and enabling a scalable and efficient cloud-native solution.
- Successfully resolved the performance and scalability issues associated with the legacy LMS, leading to such a significant positive impact and impressed stakeholders that the team size expanded to over 30 members, demonstrating the effectiveness and value of the new architecture.

Technical Architect – Mobilution, Hyderabad

September 2017 – April 2018

- Delivered an e-commerce application for the American Red Cross using Python, ML, and microservices.

Technical Architect – Contract Positions, Hyderabad

November 2016 – August 2017

- Developed multiple cloud-based e-commerce and ERP products for clients using Python and AWS.

Technical Architect Engineering – Rappier, Hyderabad

February 2015 – November 2016

- A startup required the rapid development of a cloud-based application and its mobile backend services to launch their core product, Closrr, along with supporting applications.
- Successfully architected, developed (hands-on Python for core services), tested, documented, and optimized the cloud application and mobile backend for Closrr. Additionally, helped manage the project and its management applications while mentoring other team members.
- Delivered a successfully implemented and scalable cloud-based infrastructure and mobile backend that formed the foundation for Closrr, enabling its growth into a high-level and sophisticated application alongside its expanding ecosystem of campaign and advertising solutions.

Technical Leader – MCS Solutions, Hyderabad

December 2013 – January 2015

- A real estate and facility management company faced significant challenges with their existing IoT-based smart application.
- Developed and architected a microservices-based solution on AWS to address the issues. Provided onsite mentorship to their Belgium team and continued offshore support from Hyderabad, India.
- Successfully resolved the challenges with their IoT application, leading to improved functionality and scalability. Effectively collaborated with and mentored an international team, demonstrating strong technical leadership and cross-cultural communication skills.

Technical Leader – SagarSoft India Ltd

February 2011 – January 2013

- Led the open-source PHP team to develop a medical analytics dashboard application.

Chief Architect – ICTSTUDIO, Kolkata

December 2008 – June 2010

- Recognizing a need for expert web development services, I established my own consulting company, Sarvottom, with support from ictstudio and localworldz in Ireland/France.
- Provided comprehensive Open Source web2 solutions using Python and PHP, leading both onsite teams in Ireland and offshore teams in India. Delivered complex web 2.0 portals leveraging technologies like GMap, reverse geocoding, mail management, ERP, DOM, XML, Zend, Drupal, and Magento.
- Successfully launched and operated a web development consulting company, delivering high-quality solutions and demonstrating entrepreneurial drive.

Project Manager – Mass Software Solutions Pvt Ltd, Kolkata

January 2007 – December 2008

- Managed on-site and offshore teams and delivered innovative PHP/MySQL applications.

PHP Programmer – Great Media Technologies Pvt Ltd, Kolkata

September 2004 – March 2006

- During the 2008 market crash, there was a significant increase in debt defaults, creating a critical need for effective debt consolidation solutions.
- Rapidly developed a comprehensive debt consolidation product, including a customer-facing portal with GPS-coordinate-based law selection and a suite of statistical financial calculators.
- Provided a timely and crucial solution to address the surge in debt consolidation needs during a major economic downturn, offering both user-friendly access and sophisticated financial tools for effective debt management.

Education

Master in Computer Application (MCA), Indira Gandhi National Open University, New Delhi
January 2000 – December 2002

Advanced Diplomas & Certificates

- AI, ML, Generative AI, Python & Cloud, Indian Institute of Technology, Guwahati
- Indian Institute of Technology, Roorkee
- Coursera

Skills

AI/ML/Generative AI:

- Model development. Fine-tuning LLM. Conversational AI with LLM RAG. Multi Agent with LLM and SLM with LangGraph, Google ADK, OpenAI SDK

Software Architecture:

- OOPS. SOA. Design patterns. Cloud platforms (AWS, Azure, GCP). Containerization (Docker & Kubernetes). Message brokers (Redis, Kafka)

Data Science:

- **Programming Libraries**
 - NumPy. Pandas. SciPy
- **Machine Learning**
 - Scikit-learn
- **Data Visualization**
 - Seaborn. Matplotlib

Deep Learning:

- TensorFlow. PyTorch. Keras. OpenCV. Deep learning architectures (CNN, RNN, LSTM). NLP. Time Series Analysis (ARIMA, SARIMA)

Data Platforms:

- Databricks. Snowflake

Data Visualization:

- PowerBI. Tableau

Data Manipulation

- Apache Spark

AI Applications:

- Predictive Analytics. Computer Vision. NLP. Time Series Financial Analysis. LangChain, LangGraph. Hugging Face. Nvidia Nemo & CUDA. Graph. RAG. Agentic AI

Industry 4.0 and 5.0 Automation:

- EDGE AI. SCADA. IoT. MQTT. ZigBee. Robotics.

Soft Skills:

- Foster strong teamwork and clear communication to drive collaborative success.
- Apply a proactive, entrepreneurial mindset characterized by focused diligence and a commitment to mentoring, consistently delivering high-quality results.
- Continuous Learning & Industry Engagement: Demonstrate a proactive commitment to staying at the forefront of technological advancements through continuous learning.
- Actively engage with the developer community as a member of the Google Developer Expert group and other industry developer groups, fostering knowledge sharing and collaboration.