

Manan Arora

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Summary

MS in Computer Engineering specializing in Machine Learning at University of Michigan with two years' experience in designing and building AI and Data and Analytics products. Shipped 4 production systems used by 2000+ enterprise users; published two peer-reviewed papers.

Education

University of Michigan – Ann Arbor

Aug 2025 – May 2027

MS in Computer Engineering – Machine Learning

Course Work – Matrix Methods for Machine Learning, Probability and Random Processes, Advanced Scalable Systems, Machine Learning

Sardar Patel Institute of Technology

Aug 2019 – Jun 2023

BTech in Electronics and Telecommunications (GPA – 4.0/4)

Course Work – Structured Programming Approach, Computer Architecture and Organization, Machine Learning, Principles of Soft Computing

Skills & Extracurriculars

- Python, Java, C++, SQL, Dart, PyTorch, PySpark, Apache Kafka, Large Language Models, High Level Design, Low Level Design, AWS (Lambda, S3), GCP (GKE, BigQuery), Azure (App Service, Databricks, Synapse, Data Factory), Docker, Kubernetes, GitHub, ETL, long-document understanding
- PADI certified Advanced Scuba Diver, Environmentalist, Sports – Tennis and Swimming, Avid Reader – Technology, Policy, and Development

Professional Experience

AI Engineer – Experienced Associate (First 5 hires) | AuxoAI, Bay Area, San Francisco

Aug 2023 – Jun 2025

Helped scale the organization 10x to 160+ while launching production Gen-AI and Data products.

- Self-Service data analytics across 300+ business users:** Business teams waited 90+ minutes for analyst support to access critical insights. Built a self-service analytics platform (Using Javascript, Python and Claude LLM – hosted on AWS) that **converts natural language questions into SQL database queries** and interactive visualizations, **reducing insight delivery time by 90%** while freeing analysts for strategic work.
- Master Data Management for Enterprises:** Critical business data existed in silos across multiple systems, causing inconsistent reporting and delayed decisions. Architected a Master Data Management solution (Using PySpark on Databricks) that consolidated disparate sources and enriched records with third-party market intelligence, creating a single source of truth that improved decision accuracy and speed.
- Smart Investigator for AI-led Manufacturing Intelligence:** Engineers spent days manually **analyzing 1000+ page failure reports** to identify root causes. Developed a Python-based AI-powered investigation assistant using Agentic AI built on top of language models (Vertex AI models) and **Enterprise Data** that automatically extracts critical information, identifies patterns, and surfaces **root causes with 96% accuracy—reducing investigation time 4x**.

Software Development Intern | Indovision Technologies Ltd.

Jan 2022 – Jul 2022

- Engineers frequently misconfigured network settings, causing deployment failures and delays. Built an automated validation tool that checks IP configurations before provisioning, preventing errors and reducing setup time from hours to minutes.
- Accelerated software delivery by 20%:** Manual testing and deployment processes created lengthy release cycles. Established automated CI/CD pipelines with comprehensive testing and staged deployments, enabling faster and more reliable releases to production.
- Improved consumer experience for fibre-WiFi users by prototyping an end-to-end management UX in Figma and running stakeholder demos.

Research Experience and Publications

Research Assistant at Ziyou Song Lab | University of Michigan, Ann Arbor

October 2025 – Present

- Conducting research on machine learning for second-life electric vehicle (EV) batteries, focusing on modeling degradation mechanisms and predicting remaining useful life using electrochemical impedance spectroscopy (EIS) data.

Physics Informed Machine Learning in Environmental Modelling: A Review For Climate Change Mitigation

May 2024 – Feb 2025

- Traditional ML models for climate prediction often ignore physical laws. Researched ML architectures and methods to embed physics in loss functions of ML models such as ANN, RNN, CNN. This ensures predictions remain scientifically valid while leveraging AI's capabilities.
- Authored a review paper, synthesizing state-of-the-art Physics informed ML architectures and their utility in climate change solutions.

Birth Certificates using Blockchain

May 2022 – Feb 2023

- Designed a **Blockchain-based Public Key Infrastructure (PKI)** for secure generation of birth certificates involving multiple stakeholders such as hospitals and birth registrars, driving **per-certificate cost to <\$0.01** and **shrinking turnaround time from several days to <30s**.
- Published at the **IEEE World Conference on Applied Intelligence and Computing (AIC 2024)** : <https://ieeexplore.ieee.org/document/10730987>

Projects

- Vehicle Distance Calculation Using Monocular Vision:** Safety systems require expensive multi-sensor setups for distance estimation. Implemented computer vision algorithms Integrated camera calibration parameters (focal length and principal point) for absolute scale recovery, achieving 95.6% accuracy using single camera using Triangulation distance detection.
- HR Management Software for on-field employees (iOS, Android):** Led a cross-functional product team comprising 3 software engineers and 1 UX Designer to create a mobile HRMS app. Incorporated features such as geofenced time and attendance tracking, biometric authentication, and push notifications for compliance alerts, resulting in adoption by over 500 users and streamlined operations in remote field scenarios.
- Object Recognition and Distance Detection:** Real-time applications needed accurate spatial awareness without complex hardware. Engineered a Python-based solution using advanced image processing to measure object distances accurately.