ABHISHEK BIRAJDAR

Master of Science in Computer Science | 3.5 GPA | May 2025

Bachelor of Engineering in Electronics and Telecommunication | 3.7 GPA | May 2021

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COURSEWORK

Machine Learning, Artificial Intelligence, Algorithms and Computability, Software Design & Maintenance

SKILLS

Programming and Operating Systems: Python, Java, C++, **R**, **SQL**, PostgreSQL, BASH, Linux, Windows
Analytics and BI: Power BI, Microsoft Excel, **Tableau**, Google Collab, Azure DevOps
Machine Learning and AI: TensorFlow, Keras, PyTorch, Vision Transformer, LLM, Bayesian Method
Project Management: JIRA, Scrum, Asana, MS Office (Word, Excel, PowerPoint), Client Interaction, Agile
Interpersonal: Detail-oriented, Critical Thinker, Teamwork, Management, Networking, Quick Learner

PROFESSIONAL EXPERIENCE

AI Developer, RoundTechSquare   *May 2024 - Present*
- Designed a scalable, fault-tolerant **microservices architecture** for "Aligned Rewards" using Kubernetes.
- Developed **AI-driven Career Recommendation System** with **TensorFlow**, **PyTorch**, and **Gemini API**, achieving a 20% increase in recommendation accuracy.
- Built **ETL pipelines** with Apache Kafka and Apache Spark for real-time processing of large-scale data from HR databases, performance metrics, and surveys.
- Created custom **NLP models** using **BERT** and **GPT** for semantic analysis of employee feedback and surveys, improving recommendation accuracy by 25%.
- Led end-to-end development with React, Node.js, Express, and **CI/CD pipelines** (Jenkins, Docker), reducing deployment time by 30%.

Venture Capitalist and Business Analyst, HP Tech Ventures   *January 2024 – May 2024*
- Developed the "Startup Insight System" using **Random Forest** and **XGBoost** to analyze 50+ AI startups, improving investment accuracy by 15%.
- Conducted due diligence on AI startups using **Gradient Boosting**, **logistic regression**, and market analysis, contributing to $5M USD in successful investments.
- Utilized **SQL**, **R**, & **Power BI** to gather & visualize data on AI startups, leveraging **LSTM** & **CNN models** to predict trends and improve portfolio returns by 20%.

Software Engineer, Accenture   *August 2021 – August 2023*
- Developed **REST APIs** and architected automated regression test suites on Apache NiFi for 22 user applications, increasing testing efficiency by 40%.
- Integrated **CI/CD pipelines** to streamline testing processes, reducing manual effort by 50%.
- Enhanced client satisfaction by 20% through effective support and resolution of production issues.
- Innovated **Grafana dashboards** for real-time monitoring across PROD, DEV, SIT, and UAT environments, improving failure detection by 60%.
- As **Scrum Master**, led sprint planning, backlog refinement, and daily standups, managing 270 JIRA story points.

Software Developer Intern, Babha Atomic Research Center   *November 2019 – January 2020*
- Designed a responsive interface layout for SCADA-based **Human Machine Interface** using Python, enhancing operator efficiency by 30%.
- Implemented predictive maintenance with **Linear Regression** and **Random Forest** techniques, reducing failures by 25%.
- Utilized **K-Means Clustering** and **SVMs** for failure recognition, triggering 5 priority alarms.

Data Analyst Intern, Board of Radiation and Isotopic Technology *November 2018 – January 2019*
- Created dynamic dashboards using **Tableau** to transform isotopic radiation data into actionable insights, optimizing decision-making processes by 15%.
- Improved operational efficiency by 15% by implementing automated reporting workflows with Tableau.

PROJECTS

Autonomous Disaster Response System
- Developed an **autonomous disaster response system** using **Reinforcement Learning** and **Deep Q-Networks (DQN)** to navigate complex terrains in real-time.
- Integrated **ROS (Robot Operating System)** for seamless communication between sensors and actuators, enhancing response time and accuracy.
- Implemented **sensor fusion** techniques combining LiDAR, radar, and thermal cameras to detect and navigate through hazardous environments.

Predictive Maintenance for Smart Grids
- Designed a **predictive maintenance** system for smart grids using **LSTM RNNs** to predict equipment failures, reducing downtime by 30%.
- Developed **ETL pipelines** with **Spark** and **Kafka** for real-time data processing and integration with **Azure Machine Learning** for scalable model deployment.
- Visualized system performance and insights using **Tableau**, enabling proactive maintenance and decision-making.

Real-Time Traffic Management System
- Created **real-time traffic management system** using **YOLO** & **TensorFlow** to analyze live traffic feeds & optimize signal timings, reducing congestion by 20%.
- Implemented **edge computing** solutions and **5G networks** for low-latency data processing and real-time decision-making.
- Integrated **GIS mapping** for visualizing traffic patterns and deploying adaptive traffic control measures.

Mine Detection and Removal System
- Developed a **mine detection and removal system** using **YOLO** and **TensorFlow** to detect land mines with 98% accuracy.
- Implemented **deep learning** models and **ROS** for autonomous navigation and mine detection using drones and ground robots.
- Designed and integrated **sensor fusion** techniques, combining visual, auditory, and seismic sensors to improve detection accuracy and safety.

Sensor Fusion with Multi-modal Ground Sensor Network for Endangered Animal Protection
- Developed a multi-modal sensor network with infrasound microphones, fence vibration accelerometers, visible cameras, and seismic geophones to protect endangered animals.
- Integrated **sensor fusion** techniques and **deep learning** models (**YOLO**, **Vision Transformer**) for real-time detection and tracking, enhancing poaching alerts.
- Designed a **fog and edge computing architecture** for local and remote data processing, generating situational awareness for rapid response.
- Conducted bench and field testing to validate performance and scalability, focusing on cost-effective and efficient deployment.
- Pioneered future work on advanced methodologies like **Hierarchical Hidden Markov Models**, **LSTM RNNs**, **Dempster-Shafer**, and **Bayesian** approaches to improve detection capabilities.