Sparsh Mishra

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EDUCATION

University of Wisconsin-Madison, Madison, WI   **September 2023 – May 2027**
Bachelor of Science in Computer Sciences, Mathematics (Dean's List 2023-25)

EXPERIENCE

Dirac Labs, Madison, WI   **October 2025 – Present**
Machine Learning Fellow
- Managed ML experimentation lifecycle with MLFlow and Hydra, training Liquid-Time Constant RNNs and Contiformers on the MagNav dataset for flight-data denoising.
- Ran inference pipelines on NVIDIA Jetson Orin Nano, with planned optimization using TensorRT and ONNX.
- Developed a real-time inference pipeline over serial connection via binary using custom transmission formats, CRC-16 checksums, returning results in 100ms, allowing for real-time on-flight autonomous navigation.

Charcoal Eats, Mumbai, India   **June 2024 – August 2024**
Software Engineering Intern
- Built a real-time analytics system with AWS OpenSearch, reducing latency by 30% and system overhead by 25%.
- Designed a multi-tenant POS subscription model enabling third-party adoption and 15% 1st month revenue growth
- Developed a custom REST API with rate-limiting to obtain information from Zomato dashboards with Selenium.

Clevered, Remote   **June 2022 – September 2022**
Software Engineering Intern
- Developed an autonomous desktop assistant using voice AI to automate tasks like file creation, web scraping, weather updates, web surfing, writing emails, and managing tasks on computers using Google Speech Recognition.
- Tested on a team of 5+ users with successful task completion of 98% compared to 65% of default voice tools.

RESEARCH

University of Oxford, Remote   **February 2022 – November 2022**
Student Reserach Assistant
- Co-authored "Detecting COVID-19 Infections from CT Scans Using a Convolutional Neural Network" under the mentorship of Dr. Utkarsh Agrawal, with paper entered in the iNSPiRE Competition.
- Develpoed a custom CNN using Python and TensorFlow achieving an accuracy of 97.3% on a public dataset.

Maharashtra Institute of Technology, Aurangabad, India   **December 2021 – October 2022**
Student Reserach Assistant
- Co-authored a research paper, "An Improved Object Tracking and Estimating Using Yolov5 Model Based on Adaptive Kalman Filter and Mixed Precision for Efficient Inference Performance on Surveillance Camera."
- Submitted to the Trends in Science Journal, available to be read in [pre-print.](#)

PROJECTS

Patient Management System | *AWS Bedrock, Java Spring, Kafka, PostgreSQL, Microservices*
- Deployed a microservices-based hospital system, replacing a manual paper-and-pen system lowering documentation time by **60%** and improving retrieval time by **380x** when doing a parallel run experiement
- Designed a scalabale architecture with role-based accesss, gRPC, and containerized services, with backend orchestrated with Java Spring and Kafka.
- Designed a dashboard managing 12+ data streams, allowing on-demand status checks on patients, overviewing appoitnments, printing prescriptions, and tracking blood tests, sonography results, and doctor notes.

Kairos | *RAG, React Native, Google Cloud, Canvas, REST API*
- Built a custom RAG pipeline using AWS Bedrock to transform PDF syllabus documents in a structured format, allowing students to ask questions about their classes in natural language.
- Developed a custom integration between syllabus documents, Canvas, and Google calendar, automatically scheduling assigments, smart-scheduling, and tracking completion, reducing tracking time by **20%.**

SKILLS

Technical: MLFlow, Hydra, PyTorch, NVIDIA Jetpack, AWS Bedrock, Lambda, S3, Docker, Git, LangChain, LangGraph, DeepAgents, RAG, FAISS, React, SQL, PostgreSQL, Supabase, Selenium, OpenCV, CNNs, Pandas, NumPy
Languages: Python, Java, C, C++, JS, HTML, CSS, Julia | **Open-source Contributions:** Mermaid JS, EWW, Archinstall