Dhumravarna Ambre

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EDUCATION

University of Massachusetts Amherst — **Amherst, MA**
MS in Computer Science — *Expected Graduation: Dec 2026*

D.Y. Patil University — **Navi Mumbai, MH**
B.Tech in Computer Science and Business Systems — *Graduation Date: July 2024*

Relevant Coursework: Data Structures and Algorithms, Distributed and Operating Systems, Artificial Intelligence

ACADEMIC PROJECTS

Crypto Collectibles Marketplace *July 2023*

- Developed a blockchain-powered **NFT marketplace** enabling users to buy, sell, and trade NFTs.
- Implemented **smart contracts** for secure transactions and built a **React**-based frontend.
- Secured **1st place** in the IEEE Bombay Section **Summer Internship 2023** competition by developing a **secure** and seamless digital asset trading platform using blockchain and React.

TradeX *Feb 2025*

- Engineered a modular two-tier backend using **REST APIs** and **gRPC**-based microservices architecture**.**
- Implemented HTTP front-end with custom thread pool, and gRPC-based Catalog and Order services using read-write locks and file-based persistence for **fault-tolerance.**
- Achieved **modularity** and **scalable** trade execution across multiple concurrent services in a virtualized **multi-container** setup using Docker and Compose, designed to simulate **cloud infrastructure.**

RESEARCH EXPERIENCE

Design and Implementation of a Hyperledger Fabric-Based E-Waste Management System for Home and Small-Scale Businesses – Published at IEEE IATMSI-2024, presented in Gwalior, Madhya Pradesh. (Link)

- Published peer-reviewed research on a scalable e-waste management system powered by the **Hyperledger Fabric** Blockchain framework**.**
- **Utilized** dual permissioned channels to manage token transactions and supply chain data securely**.**
- **Reduced** manual intervention and **mitigated** unauthorized dumping of E-waste by Engineering smart contracts to automate tokenized compensation and track e-waste movement.

Cygnus: Vision-Based Drone System for Drowning Detection using IoT – Published at IEEE ICMACC 2024, Hyderabad, Telangana. (Link)

- **Reduced** drowning response time by developing a computer vision-based YOLOv8-based **AI detection** system with **95% precision**, integrated with real-time drone surveillance.
- Engineered a **LoRaWAN**-based communication network with a custom Management Information System **(MIS)** and GPS tracking to enable long-range, low-latency data transmission.
- Collaborated in a **cross-functional** team combining machine learning, drone technology, IoT, and UI design.

SKILLS

Languages: Java, Python, Javascript, C, C++, C#, HTML, CSS, Go, Solidity, SQL

Frameworks and Libraries: React, ExpressJS, Django, Hyperledger Fabric, Apache Kafka, Flask, Spring

Cloud & DevOps: AWS, Google Cloud, Docker, Kubernetes, CI/CD, Git, GitHub

Databases & Tools: MySQL, DynamoDB, MongoDB, Firebase, Excel