Ankita Vilas Pimpalkar

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Education

M.S. in Computer Science, George Washington University – Washington, D.C. Aug 2024 – May 2026

- **Relevant Coursework:** Neural Networks & Deep Learning, Algorithms, Software Engineering, Cloud Computing, Component-Based Enterprise Software Development
- Graduate Tuition Fellowship — Merit-based award for academic excellence and research performance under Prof. Eric Dano

B.E. in Computer Science and Engineering, Chandigarh University – India Aug 2016 – Aug 2020

- **Relevant Coursework:** Programming languages, Machine Learning, Relational Database Management Systems, Big Data Analytics, Data Warehousing, Artificial Intelligence, Operating Systems

Technical & Professional Skills

- **Programming:** Python, Java, PHP, JavaScript, SQL, PowerShell, HTML, CSS
- **ML/Data:** TensorFlow, PyTorch, Scikit-learn, OpenCV, Pandas, NumPy, Matplotlib; Random Forest, Isolation Forest, PCA, K-Means
- **Databases/Frameworks:** MySQL, PostgreSQL, MongoDB; CodeIgniter, React, Vue.js, Node.js; REST APIs
- **Tools/Platforms:** AWS, GitHub, VS Code, Docker, Streamlit, WordPress, MQTT, CI/CD, SCCM, Vite, Tailwind CSS
- **Data Engineering:** ETL Pipelines, Real-time Data Processing, Data Warehousing, Query Optimization

Professional Experience

Software Intern (AI/ML) & Research Assistant | **Advisors: Prof. Eric Dano, Prof. Alexa Joubin**, GWU Sep 2024 – Present

- Built a Raspberry Pi–based real-time anomaly detection system using Python, MQTT, and Isolation Forest with a **10-sample rolling window**, processing **200,000+** environmental sensor readings (temperature, humidity, motion).
- Reduced false positives from **47% to 30%** while maintaining **92% recall** through temporal modeling and adaptive thresholds.
- Developed interactive **Streamlit analytics dashboard** with real-time visualization, anomaly alerts, and data export for operational monitoring.
- Optimized edge ML deployment achieving **45% reduction in computational overhead** on Raspberry Pi 4 (1GB RAM).
- Developed and maintained sensor-based data collection and processing applications supporting Systems Engineering coursework and lab infrastructure (AI4SE/Teamcenter modules).
- Designed and deployed academic research websites (joubin.org, Screening Shakespeare, Critical Theory) using HTML, CSS, JavaScript, and WordPress (GW Blogs).

Software Engineer (Full-Stack), Alternative Structure Group, Friends-Square, Go-Scale – India Aug 2022 – May 2024

- Designed and optimized MySQL schemas for fintech applications supporting **10,000+ users**, improving query performance and reducing load times by **40%**.
- Built full-stack features using Python, MySQL, and JavaScript; integrated backend APIs and contributed to a **35%** increase in client retention.
- Led technical planning and architecture alignment across teams, enabling faster iteration cycles by **25%**.

Programmer Analyst, Cognizant Technology Solutions – Pune, India Jun 2021 – Jul 2022

- Deployed **100+** enterprise applications using PowerShell and SCCM with **98%** success rate for **10,000+** users.
- Automated provisioning workflows, reducing setup time by **40%** and improving operational efficiency.
- Managed SQL databases with **10,000+** records, ensuring accuracy, availability, and consistency in production environments.

Software Engineer Intern, Talent Anywhere Services – Pune, India Aug 2020 – Nov 2020

- Built a high-performance web platform using PHP/CodeIgniter/HTML/CSS, reducing load time by **40%** and improving traffic by **20%**.
- Implemented secure authentication and CMS features, increasing platform security by **30%** and scalability by **25%**.

Projects

Real-Time Anomaly Detection | Python, Streamlit, SQL, MQTT, Isolation Forest

- Production-ready streaming pipeline with validation and temporal consistency checks **(10-sample rolling window)** for real-time sensor anomaly detection.
- **Streamlit dashboard** for live monitoring, optimized for edge constraints (1GB RAM).

GreenShoes E-Commerce Website | React, Vite, Tailwind CSS, Node.js, PostgreSQL, REST APIs

- Built eco-friendly e-commerce platform with product catalog, filtering, cart, and authentication flows.
- Integrated backend REST APIs and PostgreSQL for order management and inventory tracking.

Environmental Sound Classification | TensorFlow, Modal, Next.js, Python

- End-to-end ESC-50 ML pipeline with preprocessing, augmentation, and cloud GPU training on **Modal (A10G)**.
- Deployed inference API with Next.js frontend providing confidence-based predictions and feature analysis.

Handwritten Character Recognition | TensorFlow, CNN, OpenCV, Python

- Built and trained CNN-based handwriting recognition model using TensorFlow and OpenCV; applied data augmentation (rotation, scaling, noise injection) improving accuracy by **25%** and achieving **70% overall accuracy**.
- Analyzed model generalization, failure modes, and confidence calibration to evaluate trade-offs between model complexity and performance in small-dataset learning scenarios.