Megha Sarathe

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Professional Summary

Computer Science graduate student with 2.5 years of software development experience and hands-on research in machine learning, data science, and embedded systems. Skilled in Python, SQL, and ML/DL frameworks, currently working as a Graduate Research Assistant at West Chester University. Demonstrated ability to work across research and development roles, combining theoretical understanding with practical implementation. Currently engaged in an industry-sponsored external project with iPipeline, working on AWS-based AI workflows involving Amazon Bedrock prompt management and configuration management using AWS Systems Manager Parameter Store. Strong experience applying cloud-based and AI-driven solutions to real-world software engineering problems.

Technical Skills

- **Programming & Development**: Python, C#
- **Machine Learning & AI**: Supervised & Unsupervised ML, Deep Learning, YOLO, Random Forest, DQN, LSTM
- **Data Analysis & Visualization**: NumPy, Pandas, Matplotlib, Seaborn, Scikit-learn
- **Databases & Reporting**: SQL, SSRS, MS Access
- **Embedded & IoT**: Raspberry Pi, Proficy Plant Applications, GE Historian, Kepware
- **Software & Tools**: MS Office, Advanced Excel, Git, IIS, Tomcat
- **Testing & Deployment**: UI Testing, UAT/SIT, Debugging, Documentation

Soft Skills

- Critical thinking & attention to detail
- Creativity in applying technology to solve business problems
- Team collaboration & client-focused mindset
- Leadership & initiative
- Communication skills
- Entrepreneurial and results-driven attitude

Education

West Chester University of Pennsylvania, West Chester, PA
Master of Science | Computer and Information Sciences | GPA 3.945 | Jan 2025 – Present

Government Ujjain Engineering College, Ujjain, Madhya Pradesh
Bachelor of Engineering | Electronics and Communications | CGPA – 7.74 | June 2016 – Sept 2020

Graduate Assistantship / Professional Experience

Graduate Research Assistant – Dr. David Cooper
West Chester University | Fall 2025 – Present

- Conducting research on object detection for autonomous Smart Rover systems using Raspberry Pi and Python.
- Upgraded system to 64-bit Debian and integrated the latest YOLO version, improving detection accuracy and hardware compatibility.
- Designed and tested an end-to-end rover control and detection pipeline, ensuring robust real-time performance on updated hardware and software.
- Developed a bootstrapped YOLO-based object detection framework using a custom, incrementally built dataset, evaluating feasibility under limited data and resource-constrained conditions.
- Designed and conducted controlled feasibility experiments analyzing the impact of dataset size, lighting variation, object scale, and class similarity on detection robustness.
- Primary author on an ongoing research paper demonstrating practical object detection deployment on embedded platforms, with emphasis on educational and low-power system applicability.

iPipeline | Jan 2026 – Present

- Selected for an industry-sponsored external project through CSC 555 (Software Engineering).
- Collaborating with a cross-functional team to design and develop enterprise-grade software solutions aligned with real-world business requirements.

Graduate Research Assistant – Dr. Ashik Ahmed Bhuiyan
West Chester University | Spring 2025 – Summer 2025

- Developed a machine learning–based approach for energy-efficient real-time scheduling of DAG tasks on heterogeneous multi-core platforms.
- Integrated Random Forest, Deep Q-Network (DQN), and LSTM models with processor merging and SimPy-based simulation to reduce static and dynamic power consumption.
- Achieved 45–54% energy savings with zero deadline misses, ensuring all tasks completed on time.
- Recognized by the supervising professor for innovation; currently preparing a research paper base on this work.

Professional Experience – MES (Manufacturing and Execution System) Developer
TATA CONSULTANCY SERVICES LIMITED | Pune, India | Jan 2022 – Apr 2024

- Gained hands-on experience with MES software and tools like Proficy Plant Applications, Proficy Historian, Kepware, and IGS
- Configured and optimized Plant Applications using customer-provided master data, ensuring smooth operations across 50+ production lines.
- Historian Tags Configuration: Validated and managed Historian tags, identifying and fixing 90% of discrepancies in PLC system data to improve reporting accuracy.
- Designed and deployed user interfaces for operators in 20+ facilities, resulting in faster adoption and improved usability. Worked on 10+ SSRS reports and SQL components.
- Conducted thorough UAT and SIT testing, resolving issues upfront and ensuring seamless deployments.
- Developed and streamlined testing and installation procedure documentation, ensuring it was consistently updated, which helped new users and onboarding personnel integrate more efficiently.