

Mohammad Shahid Shaik

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Education

Master of Professional Studies: Master’s in Computer Science
Oklahoma State University - Stillwater, OK
Bachelor of Technology: Engineering in Electrical and Electronics,
Vignan University – Guntur, India

Exp’May2025

Aug 2022

Work Experience

Full Stack Developer Research Assistant
Oklahoma State University, OK | August 2023 – Present

- Managed and optimized high-performance computing clusters, assisting in software installation, user support, and system maintenance.
- Administered Linux-based environments (Ubuntu, CentOS), configured Slurm for job scheduling, and provided support to researchers running computational applications.
- Developed Python-based automation scripts for job submission, resource monitoring, and performance optimization of parallel computing tasks.
- Installed and maintained scientific and engineering software packages (Anaconda, MPI, OpenMP) for research projects.
- Designed and implemented a GUI for NASA’s Gustavo project using Streamlit, enhancing user interaction with containerized applications.
- Provided technical support to faculty and students for software debugging, troubleshooting, and training sessions on HPC resources.

Full Stack Developer Research Assistant
Oklahoma State University, OK
Jan 2023 – Jul 2024

- Developed an agent-based modeling (ABM) simulation using Python to analyze occupant behavior in buildings.
- Implemented parallel computing techniques (MPI, OpenMP) to enhance simulation performance.
- Designed and optimized a Flask-based API for real-time data exchange and visualization.
- Integrated machine learning models to predict occupant behavior patterns and energy efficiency outcomes.
- Managed data storage solutions and implemented efficient data processing pipelines for large-scale simulations.

Skills

Operating Systems	Linux (Ubuntu, CentOS, Red Hat), Windows, macOS
Programming Languages	Python, C, C++, Bash, JavaScript, SQL
HPC & Cluster Management	Slurm, MPI, OpenMP, Docker, Kubernetes
Software & Libraries	Anaconda, NumPy, Pandas, SciPy, Flask, FastAPI
Database Management	MySQL, PostgreSQL, MongoDB, Neo4j
Cloud & DevOps	GCP (Cloud Functions, Compute Engine, BigQuery), AWS (EC2, S3, Lambda)
Version Control	Git, GitHub, GitLab, VS code
Research Computing & Simulations	Agent-Based Modeling, Container Orchestration, Machine Learning
Scripting & Automation	Shell Scripting, Python Automation, CI/CD

Projects

Gustavo GUI Development – Container Orchestration

- Designed a Graphical User Interface (GUI) using Python and Streamlit for Gustavo, a NASA-backed container orchestration framework.
- Developed an interactive dashboard to monitor system health, container deployment, and resource allocation.
- Integrated RESTful API endpoints for seamless communication between front-end and backend systems.
- Ensured cross-platform compatibility across Linux, macOS, and Windows (WSL).
- Optimized UI responsiveness and performance, making real-time system monitoring efficient for users.

Occupant Behavior Simulation with Agent-Based Modeling

- Developed an agent-based modeling (ABM) simulation using Python to analyze human behavior in building environments and its impact on energy efficiency.
- Designed a scalable simulation framework that integrates real-world occupant behavior data for predicting energy usage patterns.
- Implemented parallel computing techniques (MPI, OpenMP) to accelerate large-scale simulation computations.
- Built a Flask-based API for real-time data exchange and visualization, enabling interactive analysis of occupant decision-making.
- Integrated machine learning algorithms to enhance prediction accuracy for energy-efficient behavior modeling.
- Developed a web-based interface using HTML, CSS, and JavaScript for interactive visualization of simulation results.
- Optimized the simulation pipeline using Pandas and NumPy, ensuring efficient processing of large datasets.