AAYAM RAJ SHAKYA

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EDUCATION

Mississippi State University Starkville, MS
B.S. in Computer Science, Concentration in AI and Minor in Mathematics Expected Dec 2025
Cumulative GPA: 4.00/4.00, *6×President's List*
Relevant Coursework: Intro to Machine Learning, Deep Learning, AI Fundamentals, Mathematical Foundations of Machine Learning, Data Structures and Algorithms, Multivariate Calculus, Engineering Statistics, Software Engineering Fundamentals
Affiliations: MSU SIG Artificial Intelligence Club, Wireless Research Community

SKILLS

Languages: Python, C++, HTML, CSS, JavaScript, SQL
Technical skills: PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, NumPy, Pandas, Matplotlib, Hugging Face, Git, Docker, LaTeX, ReactJS, TypeScript, Flask

EXPERIENCE

AI Research Intern May 2025 – Present
Center for Equitable Artificial Intelligence and Machine Learning Systems Baltimore, MD

- Engineering an ensemble model to detect driver drowsiness by leveraging transfer learning with architectures like MobileNet, EfficientNet, and others, and stacking their outputs to enhance prediction accuracy
- Building a real-time, non-contact drowsiness detection system using advanced computer vision to analyze live video feeds and trigger immediate alerts
- Preparing detailed technical documentation and co-authoring a research paper for submission to Transportation Research Board journal and presentation at leading transport conferences

Undergraduate Researcher Dec 2023 – Present
Wireless Communications Lab, Department of Electrical and Computer Engineering Starkville, MS

- Conducting research on NSF-funded AERPAW and Open AI Cellular projects, focusing on scalable, software-driven solutions for next-generation wireless communications
- Designed and simulated 5G network environments using open-source suites srsRAN and Open5GS, enabling robust testing with software-defined radios (SDR/USRP) and commercial off-the-shelf user equipment

DIS Research Student Jan 2025 – May 2025
Geospatial Computing for Environmental Research (GCER) Lab Starkville, MS

- Annotated color infrared imagery to create high-res land cover datasets and worked on U-Net-based semantic segmentation models for classifying land cover types based on biophysical features

PROJECTS

Conditional WGAN-GP for Wireless Channel Modeling | *Python, PyTorch, Docker*

- Developing a conditional WGAN-GP with LSTM to generate realistic synthetic UAV-to-ground wireless channel data, accurately modeling complex, non-stationary channel behaviors by conditioning on UAV dynamics and environmental parameters
- Integrating the WGAN-GP model into AERPAW's digital twin platform, enabling real-time, AI-driven wireless channel simulation and scalable wireless experimentation
- Aiming to culminate this work in a research paper for submission to IEEE

curious.AI - AI for Everyone | *TypeScript, Next.js, Gemini AI*

- Collaborated with open-source contributors to build an AI chatbot powered by Google's Gemini Pro, enabling natural conversations, code generation, and image creation
- Maintained and designed a responsive, production-grade web interface using Next.js and Tailwind CSS, optimizing user interaction

Campus Vision AI Challenge | *Python, TensorFlow, Keras*

- Developed a TensorFlow-based CNN model to classify university buildings, boosting accuracy by 17% via hyperparameter tuning and regularization (LR scheduling, early stopping)
- Trained on a dataset of 12,700+ images, improving model performance through data augmentation and parameter optimization, with training metrics tracked using TensorBoard