

# SUSHANT GAUTAM

Starkville, MS

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## EDUCATION

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**Master in Computer Science, *Mississippi State University***

Expected 2025

**Relevant Coursework:** Algorithms, Cloud Computing, AI Robotics, Autonomous Vehicles, Data Science, Data Analysis, Deep Learning, and Machine Learning. GPA: 4.0.

## EXPERIENCE

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**Graduate Research Assistant**

Aug 2023 - Present

*Mississippi State University*

*Starkville, MS*

- Currently working in the Robotic and Perception Technology Research Lab (RAPTOR) of [Dr. Jingdao Chen's](#) in the field of computer vision focused on Generative AI.
- Enhanced **image restoration** accuracy by 20% through GAN and Diffusion Models in collaboration with **Stanford, Princeton, and BlueHalo**.
- Streamlined the machine learning model deployment process through **CI/CD pipelines** using **GitLab CI/CD, Docker, and Airflow** for automatic spin of containers over AWS EC2 instance and deployment of ML models through kubernetes.
- Optimized **model performance metrics** using **Pytorch-Lightning, Optuna, and Scikit-learn**.
- **Technologies used:** Pytorch, Tensorflow, Mlflow, MLOps, Scikit-learn, Kubernetes, AWS Sagemaker, Optuna, Docker.

**Machine Learning Engineer**

Feb 2023 - Aug 2023

*Proxmed Pty. Ltd.*

*Victoria, Australia*

- Implemented a Large Vessel Occlusion (LVO) detection system using **YOLOv7**, raised accuracy by 8% and revenue by 10%.
- Deployed models via **AWS Lambda** with a serverless configuration, reducing inference time by 5.5%.
- Spearheaded **CI/CD pipeline development** and containerization with **Docker and Kubernetes**.
- Utilized **Distributed-GPU Training** and applied model **quantization** using tools like **TorchScript, ONNX** to optimize model inference, reducing computation time for real-time predictions.
- **Technologies used:** PyTorch, YOLOv7, AWS Lambda, Docker, Kubernetes, Label Studio.

**AI Research Scientist - Contract Work**

Feb 2022 - April 2022

*HeHealth Inc.*

*San Francisco, CA*

- Increased classification accuracy by 7.25% through the creation of **synthetic datasets** using **Dataset-GAN** and other few **Few-shot Learning** models
- **Technologies:** GAN, Few-shot Learning, PyTorch, Tensorflow, Data Augmentation.

**Machine Learning Engineer**

Oct 2020 - Oct 2021

*Wiseyak Inc.*

*Bellevue, WA*

- Led a cross-functional AI team, driving an **8.25% improvement in the accuracy of disease recognition models** for AI-assisted **medical diagnosis**, which led to **4.12%** improvement in customer satisfaction rate.
- Developed and optimized **medical image diagnosis pipeline** that reduced false positives by **60%**, leveraging **custom machine learning pipelines** from scratch tailored for in-house use.
- **Technologies used:** TensorFlow, PyTorch, CI/CD, MLOps, Mlflow, Containerization(Docker, Kubernetes), SQL, SQLAlchemy, React.

## PROJECTS

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- **End-to-End MLOps Pipeline for Image Classification with AWS Sagemaker:** Implemented a complete MLOps pipeline for an end-to-end image classification task with AWS Sagemaker. ([GitHub](#))
- **Realtime Data Streaming Data Engineering Project:** Used **Airflow, Python, Apache Kafka, Apache Zookeeper, PySpark, Docker compose** and **Cassandra** for real-time data streaming. ([GitHub](#))
- **Self-Driving Car:** Developed a minimalist autonomous vehicle using **Deep Learning** and **PyTorch** for navigation. ([Github](#))
- **Handwriting Recognition using Deep Learning** Built an OCR tool that converts handwritten text to digital text for research purposes during my undergraduate thesis with a CER of 3.04%. ([Github](#))
- **Related project work for the Graduate Course :Build Autonomous Tractor at Mississippi State University** where I led the project to build autonomous tractor with integration of LIDAR, GPS, Actuator, Sensors and RGB-D Camera. ([Github](#))

## ACTIVITIES & LEADERSHIP

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**President, MSU AI Club *Mississippi State University***, Jan 2024 - Present

- Led hands-on workshops on **Neural Networks, MLOps, and Generative AI**, alongside coordinating coding competitions, lab tours, and AI seminars to foster collaboration and AI education within the university community.
- Organized a coding competition where participants built an image classifier to classify campus buildings, promoting real-world AI applications and model development.

## SKILLS

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**Programming Languages:**

Python, R, Java, C++, Scala, Bash, SQL

**ML/AI Tools:**

PyTorch, TensorFlow, Scikit-Learn, Keras, Pytorch-Lightning, HuggingFace

**MLOps Frameworks:**

Kubeflow, MLflow, Airflow, ZenML, DVC

**Cloud Technologies:**

AWS (S3, Lambda, EC2, Sagemaker), Azure, GCP

**Data Engineering:**

Apache Spark, PySpark, Airflow, Kafka, Zookeeper, Cassandra

**Deployment Tools:**

Docker, Kubernetes, Git, Jenkins, GitLab CI, FastAPI, Flask, SQLAlchemy

**Technologies:**

SQL, Model Deployment, Model Quantization, Pruning, Feature Engineering, Hyperparameter Tuning, Distributed-GPU Training, Machine Learning, Deep Learning, Computer Vision, Data Analysis, Data Visualization, Data Science, AutoML, CI/CD Pipelines, NLP, LLM