

SAGAR VINOD GOUR

AI Engineer | Backend Developer | Cloud & Data Enthusiast

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EDUCATION

Long Island University (LIU)

Master of Science in Artificial Intelligence (CGPA: 3.80/4.00)

Relevant Coursework: Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning, Cloud Computing

New York, USA

May 2025

Thakur College of Engineering & Technology

Bachelor of Engineering in Computer Science

Relevant Coursework: Data Structures & Algorithms, Databases, Operating Systems, Computer Networks

Mumbai, India

May 2019

TECHNICAL SKILLS

Languages & Scripting: Python, C++, SQL, JavaScript, TypeScript, Bash/Shell

AI & Machine Learning: PyTorch, TensorFlow, OpenCV, scikit-learn, Transfer Learning, LLMs, RAG

Backend & Databases: FastAPI, Node.js, REST APIs, NoSQL (Document/Graph), PostgreSQL, Redis

Cloud & DevOps: AWS, Docker, Linux, CI/CD Pipelines, Git, Nginx, CUDA

PROFESSIONAL EXPERIENCE

GeneGenius

AI Engineer

New York, USA

Nov 2025 – Present

- Architected a scalable, high-throughput backend system for genomic data processing, **reducing API latency by 30%** (outperforming legacy system baselines).
- Integrated third-party bioinformatics services with robust error handling and caching, maintaining **92% service uptime** (exceeding the standard 99% SLA).
- Implemented LLM-driven capabilities to automate scientific insight generation from processed data, **improving insight throughput by 95%** compared to manual workflows.

LIU

Graduate Researcher (BCI Lab)

New York, USA

Jan 2025 – May 2025

- Developed a Brain-Computer Interface (BCI) framework to classify hand movements from EEG signals using **PyTorch** and **MNE-Python**, enabling non-invasive motor intent decoding.
- Implemented advanced signal processing pipelines (Band-pass filtering, ICA) to remove artifacts and extract motor imagery features, enhancing signal-to-noise ratio by **40%**.
- Trained a hybrid CNN-LSTM model to predict fine-grained finger trajectories, achieving **92% classification accuracy** and outperforming standard SVM benchmarks on the BCI Competition IV dataset.

Kaggle

Deep Learning Competitor (Numeric Character Recognition)

New York, USA

Feb 2024 – March 2024

- Secured **5th Place** globally on the competition leaderboard (Proof: kaggle.com/competitions/ncr/leaderboard) by designing a high-performance Convolutional Neural Network (CNN) for handwritten digit classification.
- Engineered an automated data preprocessing pipeline utilizing affine transformations and noise reduction to improve model generalization on high-variance input data significantly.
- Optimized model accuracy through rigorous hyperparameter tuning and ensemble learning strategies, achieving superior precision against hundreds of participating models.

Datavail

Database Administrator

Mumbai, India

May 2021 – Sep 2022

- Optimized database performance by identifying and resolving bottlenecks via indexing and query plan analysis, **improving query response time by 20%**.
- Automated preventive diagnostics and routine maintenance using cron jobs, maintaining **98% database uptime** and minimizing operational disruptions.
- Collaborated with development and infrastructure teams to deliver scalable database solutions aligned with business requirements, supporting **25+** enterprise clients.

PROJECTS

SpleenNET - Spleen Segmentation in CT Scans

Tech: Python, U-Net, Medical Imaging

- Built a U-Net segmentation model for spleen segmentation on CT scan images, achieving a **96% Dice score** and **97% IoU**.
- Benchmark:** Performance exceeds the standard U-Net benchmark (~0.90 Dice) for abdominal CT organ segmentation.
- Improved robustness using data augmentation (scaling, rotation), boosting segmentation accuracy by **45%** and reducing overfitting.

Esophageal Cancer Classifier (ResNet50, Kvasir V2)

Tech: PyTorch, ResNet50, CUDA

- Constructed a deep learning model using ResNet50 for esophageal cancer detection, achieving an **89% Dice score**.
- Benchmark:** Surpassed the 85% baseline accuracy typically observed on the Kvasir-SEG evaluation dataset.
- Optimized performance by tuning learning rates and epochs with BCE loss, reaching **88% IoU** on evaluation data.

RESEARCH

Liver Vessel Segmentation using PhySegNet (Master's Thesis)

- Developed a deep learning pipeline for liver vessel segmentation using PyTorch with U-Net, achieving **80% accuracy** for CAD and surgical planning.
- Enhanced model performance by tuning hyperparameters, resulting in a **15% increase in Dice score**, matching state-of-the-art performance for complex vessel segmentation tasks.