Sarthak Singh

+1 (631)-355-8065 | sarthaksingh1211@gmail.com | linkedin.com/in/sarthaksingh1211 | github.com/SarthakSingh-96

EDUCATION

Stony Brook University   Stony Brook, NY
Master of Science in Computer Science   *Aug. 2024 – May 2026*
- **Coursework:** Distributed Systems, Database Systems, Machine Learning | **Teaching Assistant:** Object-Oriented Programming

NMIMS MPSTME   Mumbai, India
Bachelor of Technology in Computer Engineering, GPA: 3.6/4.0   *Aug. 2020 – May 2024*

EXPERIENCE

Cloud Computing Intern   May 2023 – Aug. 2023
Vodafone Idea Ltd.   *Mumbai, India*
- Developed cloud-native applications using Docker and AWS, reducing operational costs by 15% through automated resource management and containerization
- Engineered backend migration of 12+ applications to cloud platforms, achieving 20% reduction in system downtime with zero data loss
- Built automated scaling solutions and monitoring dashboards, improving system efficiency by 25% and resource allocation by 18%
- Accelerated deployment cycles by 30% implementing CI/CD pipelines using Jenkins and microservices architecture

Machine Learning Engineering Intern   Dec. 2023 – May 2024
NMIMS University   *Mumbai, India*
- Engineered full-stack recommendation engine using ConvLSTM and CNN models, achieving 89% detection accuracy with Python, TensorFlow, and OpenCV
- Scaled application to handle 10,000+ user requests, improving engagement by 18% and satisfaction by 25% through optimized ML pipelines
- Implemented A/B testing framework across 500+ users to validate feature performance and model accuracy improvements

PROJECTS

3D Neural Rendering Engine (NeRF) | *Python, JAX, TensorFlow, CUDA*   Jan. 2024 – May 2024
- Developed GPU-accelerated rendering engine with 3,000+ lines of Python code, implementing volumetric ray tracing algorithms achieving 25-30 dB PSNR
- Architected 3D reconstruction pipeline with Poisson surface reconstruction supporting 5 file formats, optimizing rendering performance by 40%
- Implemented camera calibration system processing 100+ images with 95% pose estimation accuracy using computer vision algorithms

Distributed Banking System with Consensus Protocol | *Python, gRPC, Docker, Redis*   Sep. 2023 – Dec. 2023
- Architected distributed banking application with Linear-PBFT consensus protocol ensuring Byzantine fault tolerance across 10+ nodes, achieving 99.9% uptime and 1,000+ TPS
- Optimized backend performance improving transaction throughput by 22% and reducing latency from 500ms to 320ms through asynchronous processing
- Built monitoring and logging infrastructure enabling automatic failover with 2-second recovery time and full ACID transaction guarantees

Agent-Based MLOps Platform | *Python, Streamlit, XGBoost, SHAP, LIME, PyDantic*   Oct. 2024 – Dec. 2024
- Designed autonomous ML pipeline with 5 specialized agents coordinating via JSON messaging protocol, executing 50+ hyperparameter trials across Random Forest and XGBoost models achieving 92% classification accuracy on healthcare datasets
- Integrated SHAP and LIME explainability frameworks generating 100% model interpretability scores with fairness validation reducing bias by 15% across 3 protected attributes in finance and healthcare domains
- Deployed Streamlit web interface processing 20+ datasets with drag-and-drop uploads, reducing pipeline setup time by 60% through interactive visualization and comprehensive audit logging tracking 500+ agent decisions

CodeWeb - VS Code Extension | *TypeScript, VS Code API, Node.js* | Marketplace   Feb. 2026
- Architected real-time dependency analysis engine processing 1,000+ code references per second with interactive graph-based UI visualizing cross-file impact
- Engineered automated type classification system achieving 95% accuracy categorizing code components using VS Code Language Server Protocol
- Deployed click-to-navigate visualization panel reducing code navigation time by 40% and accelerating developer productivity

TECHNICAL SKILLS

Languages: Python, C++, Go, TypeScript, JavaScript, SQL, R, HTML/CSS, Bash/Shell Scripting
ML/DL Frameworks: PyTorch, TensorFlow, Keras, JAX, Hugging Face Transformers, scikit-learn, XGBoost, LightGBM
LLM & Gen AI: LangChain, LlamaIndex, OpenAI API, RAG, Fine-tuning (LoRA/QLoRA), Prompt Engineering, Vector Databases (FAISS, Pinecone, ChromaDB)
Computer Vision & NLP: OpenCV, YOLO, ResNet, ViT, BERT, GPT, LSTM, Transformers, spaCy, NLTK, Librosa
MLOps & Development: Docker, Kubernetes, Git, Jenkins, MLflow, Weights & Biases, DVC, Airflow, FastAPI, Flask, Streamlit, React, Node.js
Cloud & Databases: AWS, GCP, PostgreSQL, MongoDB, Redis, Spark, pandas, NumPy
Software Engineering: REST APIs, Microservices, CI/CD Pipelines, VS Code Extension Development, System Design, Distributed Systems, Algorithms, Data Structures