Sagar Jha

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Education

Last Updated: Sept. 2025

University of Illinois Urbana-Champaign (UIUC) — Champaign, IL, USA
Master of Computer Science — *Aug 2025 – Jun 2027 (Expected)*
Courses: *Applied ML, Advanced NLP, Distributed Systems*

Thapar Institute of Engineering and Technology — Patiala, India
Bachelor of Engineering - Computer Science and Engineering — *Jul 2020 – Jun 2023*
Award: *Dean's List for Academic Excellence –* ***CGPA: 9.73/10***
Contributions: *2 (Journal and Conference) published research papers | 4 Research Internships | INRIA research offer*

Skills Summary

Languages, Frameworks & Packages: Python, C++, JavaScript, Java, Git, SQL, Matlab, Q, R, Shell, FastAPI, Django, NodeJS, React, mpi4py, KDB+, AWS, Docker
ML Frameworks: PyTorch, Scikit-Learn, TensorFlow, Keras, OpenCV, CUDA, HuggingFace, Vision/Language Models
Tools & Database: TensorRT, PostgreSQL, MySQL, SQLite, Pandas, Numpy, zeroMQ
Certifications: Amazon Web Sevices Cloud Practitioner(CLF-02)

Professional Experience

JPMorgan Chase & Co. — Bangalore, India
Software Engineer - ML (Technology Stack: Python, React, AWS, Q, kdb+, Java) — *Jan 2023 – Aug 2025*

- Built a **high-throughput KDB+/q pipeline** to process **large-scale time-series data**, delivering **400K+ real-time** trading signals and **3K+ chatbot insights daily**, cutting trade **execution latency.**
- Deployed an **ML-powered NLU chatbot** with intent classification, entity extraction, and text mining, **enabling plain-English market queries** and reducing **retrieval time by 60%.**
- **Architected a cross-stack analytics** layer (Python, Java, KDB+, React) unifying pre/post-trade data, enabling automated back-testing and **anomaly detection**, and **saved 40% of manual surveillance effort.**

Mitacs Globalink Research — Calgary, Canada
Machine Learning Intern — Mentor: Prof. Yasaman Amannejad Certificate — *Jun 2022 – Aug 2022*

- Developed **six novel SplitFed Learning algorithms** merging Split and Federated Learning for **privacy-preserving distributed training**; achieved 40% faster convergence via **parallel client processing** across heterogeneous devices.
- **Built scalable ML systems** with **multi-threading, mpi4py, and ZeroMQ,** deploying on **GCP** and testing on EDGE-to-server hardware with configurations like **no-label-sharing** and **vertical partitioning.**
- **Threading and MPI:** Developed an implementation of Split Learning using Multi-threading; also used mpi4py to develop a distributed version of split learning to train the neural network using heterogeneous devices in distributed fashion without sharing raw data.
- Conducted experiments across **EDGE devices to high-end servers**, evaluating configurations such as **no-label-sharing** and **vertical data partitioning** to ensure robustness.

FANUC India Pvt. Ltd — PAN India
Engineer, Turnkey Solutions, Robots PROJECTS — *Aug 2016 – Jul 2020*

- **Developed** advanced **vision-based** robotic systems for real-time object identification and decision-making, including visual tracking, bin-picking, and 3D-data-driven motion control in multi-robot (master–slave) configurations.
- Programmed and integrated 2D-iRVision, 3D-Vision, and COBOT applications across **25+ major critical projects** in India, optimizing cycle time and precision in complex industrial environments.

Projects

Real-Time Multimodal News & Market Sentiment Analysis Engine | Python, PyTorch, Hugging Face Transformers, FastAPI, WebSockets, Redis, AWS Lambda, DynamoDB

- Identified need for faster decision support in trading by correlating **market data with real-time news sentiment.**
- Built a low-latency multimodal deep learning system combining **FinBERT sentiment analysis** and **CNN-based chart pattern recognition**, deployed via FastAPI + AWS serverless architecture.
- Delivered actionable insights with **less than 200ms latency and 92% sentiment accuracy**.
- Live sentiment analytics tool for financial markets that improved trade signal generation speed by **40%**, contributing to a **projected $1.2M annual alpha gain** in backtested scenarios.

Privacy-Preserving Federated Learning Platform for Edge Devices | Python, PyTorch, TensorFlow Federated, Docker, Kubernetes, gRPC, AWS EC2, S3

- Addressed **privacy concerns** in distributed AI training across IoT/edge devices.
- Developed a federated learning orchestration system with **secure aggregation**, adaptive client selection (RL-based), and model compression, deployed on Kubernetes to simulate 100+ clients.
- Achieved **20% faster model convergence** over FL baselines and successfully demonstrated privacy-first handwriting recognition across distributed Raspberry Pis.
- Built a **federated learning** system that cut model training time by 20% while maintaining data privacy, enabling the team to unlock **new client contracts worth $500K+** in regulated sectors.

Additional Projects: Comprehensive list available here