

SAI SHARATH CHANDRA KOPPU

+91-7249330405

Sharathkoppu4@gmail.com

linkedin.com/in/sai-sharath-chandra-koppu-065214311

github.com/SharathK4



Education

BML Munjal University

2023 – 2027

B.Tech, Computer Science Engineering

CGPA: 8.3

DAV Public School

Grad. Jan 2023

Class XII (Science), CBSE

Grade: 88.2%

Experience

Lashvae

May 2026 – Aug 2026

Software Engineering Intern — AI & RAG Infrastructure

Remote

- Owned an end-to-end, multi-tenant knowledge pipeline for PDF and web sources spanning document parsing and OCR, normalization, metadata extraction, PostgreSQL persistence, Qdrant vector search, and grounded retrieval.
- Built browser-based ingestion with asynchronous processing, SHA-256 duplicate-content detection, human-review APIs, and Dockerized backend services, taking the workflow from prototype to reliable production operation.

Bharti Airtel

Jun 2025 – Aug 2025

SDE Intern — AI & Agentic Systems

On-Site

- Architected intelligent agent systems for enterprise automation across two flagship AI projects using **LangChain** and **LangGraph**, streamlining workflows by 25%, reducing response times by 35%, and improving operational efficiency by 40%.

U-Start Cabs and Rides

Aug 2023 – Feb 2024

Full Stack Developer Intern

On-Site

- Built and shipped a full-stack ride platform, increasing user engagement by 30%, cutting load times by 45%, and improving data retrieval speed by 50% through RESTful API integration.

Research

Local-Time Limits and Calibration Limits of Spatial-Sign Delay Statistics | *Submitted to Econometrica Theory (ET)* 2026

- Developed asymptotic theory for spatial-sign statistics formed from overlapping normalized time-series windows, proving Brownian local-time limits for integrated Gaussian random walks while accounting for overlap dependence and signed-tail cancellation.
- Identified a distinct large-initial-level regime and showed that fixed positive lower-tail cutoffs at the square-root sample-size scale can yield rejection probabilities approaching one for some non-cointegrated Gaussian pairs, exposing a calibration limitation.

Martensitic-Transition Force Statistics: Inference & PDE Extension | [Paper](#) [GitHub](#)

2026

- Reconstructed the published force-statistics workflow from 100 molecular-dynamics traces and implemented maximum-likelihood inference for $U^\ddagger$, $\xi^\ddagger$, and Γ_0 with profile likelihoods, bootstrap uncertainty, and synthetic recovery.
- Implemented a forward Smoluchowski/Fokker–Planck solver using finite-volume Scharfetter–Gummel fluxes and backward Euler time stepping; validated positivity, conservation, first-passage behavior, grid/time convergence, and 201 automated tests, and extended the pipeline with curve-transition analysis and 16-setting stability sweeps across 296 runs.

NetSurf: Intent in the Loop for Browsing | *Research Prototype*

2026

- Designed a hierarchical NLP and agentic-browser architecture with structured intent parsing, 14+ specialized agents, an Execution Supervisor, resource governance, and safety gates for controllable multi-step web task execution.

Projects

Keystone: Liquidity Contagion & Intervention Engine | [GitHub](#)

2026

- Built a decision engine that estimates merchant payment dependencies, simulates missed-payment cascades over a 168-hour horizon, and searches counterfactual liquidity interventions by replaying each plan against the same shock.
- Implemented synthetic ground-truth network generation, FastAPI services, intervention optimization, and a React frontend; benchmarked on a 100-merchant network with 216 estimated relationships and 7 shock scenarios.

Agentic Software Engineering & 3D Synthesis | [GitHub](#)

2025

- Engineered a hierarchical LLM agent architecture with a Planner routing requests to specialized Coding and Blender agents for code generation, review, debugging, and natural-language 3D scene manipulation.
- Connected the Blender agent to live scenes through socket-based RPC and maintained conversational context for iterative, multi-step software and 3D workflows using **LangChain**.

Mech: Motion-to-Mechanism Compiler | [GitHub](#)

2026

- Architected a professional computational mechanism-design system with a native **C++20** kinematics core behind a React presentation layer, targeting the search for simple manufacturable bar-and-joint mechanisms from desired planar motion.
- Established a research-driven development workflow with append-only experiment logs, architecture decision records, reproducibility constraints, and a multi-topology motion-compiler milestone to keep unknowns explicit and prevent placeholder logic.

Technical Skills

Programming: Python, C++, Java, SQL

ML & Data Science: PyTorch, TensorFlow, scikit-learn, OpenCV, LightGBM, NumPy, Pandas, Statsmodels

ML Domains: Computer Vision, Deep Learning, NLP, Statistical Machine Learning, Data Science, Time-Series Modeling

Research & Evaluation: Experimental Design, Hypothesis Testing, Feature Engineering, Walk-Forward Validation, Optimization, Reproducible Experimentation, Technical Writing

LLM & ML Systems: LangChain, LangGraph, RAG, MLflow, Vector Search, FastAPI, Flask

Software Engineering: React, Next.js, Node.js, Django, REST APIs

Data & Infrastructure: Qdrant, PostgreSQL, Docker, Git, Linux

Honors & Leadership

- **Amazon ML Summer School 2026** — Selected among **3,000 students** from **134,421 registrations** for Amazon's machine-learning program.
- **Elected Academic Affairs Secretary, Student Council** — Elected to a university-level student council leadership role representing academic interests, coordinating student concerns and resolutions with faculty and administration.
- **Vedic Mathematics & Abacus** — Placed 3rd at the All India Nationals in three consecutive years across the two disciplines.