SAGAR ABHYANKAR

Urbana-Champaign, Illinois

in Sagar Abhyankar | 🌐 Portfolio | ⬡ SagarA | ✉ sagarabhyankar18@gmail.com

EDUCATION

Master of Computer Science — Aug 2024 - **Dec 2025** (Expected)
University of Illinois at Urbana-Champaign
Course Assistant for CS222
Relevant Coursework : CS 411 Databases, CS 440 AI, **CS 425 Distributed Systems**

Bachelor of Engineering - Computer Engineering — July 2020 - June 2024
Pune Institute of Computer Technology — *CGPA:* **9.38**
Relevant Coursework : Theory of Computation, Data Structures and Algorithms, Artificial Intelligence, Distributed systems, Computer Networks and Security, Cyber Security and Digital Forensics

INTERNSHIPS

Mastercard — Pune, Maharashtra, India
Software Development Intern — Security Operations Centre — *May 2023 - Jul* **2023**

- Developed a **Distributed Scalable Rapid Incident Response System** reducing the response time from **days to minutes**.
- Built an automated tool arsenal for analyzing Forensic Artefacts, **saving** SOCIR dept. **2000+ hours yearly**
- Implemented with **Kubernetes, Docker** Apache Spark, Node.js and **bash**.

Bajaj Finserv — Pune, Maharashtra, India
Software Development Intern — *March 2023 - May* **2023**

- **Created a Cryptocoin eco-syste**m called Bajaj Coin using **on premise linux nodes.**
- Setup **distributed private blockchain network** using go-ethereum, along with a compliance backup database.

Reverie Language Technologies — Bengaluru, Karnataka, India
AI Researcher — *Aug 2023 - Mar* **2024**

- **R&D** of real time **state-of-the-art noise cancellation** software using deep learning for Indic Languages.
- Curated Datasets, **trained large models with novel architectures,** the carried out **research won** at PICT's InC'24 **national hackathon.**

Newton's Apple - A cyber security startup — Pune, Maharashtra, India
Lead *Security Software Development Intern* — *Aug 2023 - Feb* **2024**

- Developed and **Deployed** the flagship line-up of **cyber security products and services.**
- Includes tools such as Phishing Simulators, **Vulnerability Assessment and Penetration Testing. Configured on premise servers** for Tata Technologies.
- The product included cost efficient interfacing with **AWS EC2 and SES**

PyBots LLC - An automation startup — Bengaluru, Karnataka, India
Software Engineering Intern — *Feb 2022 - Jan* **2023**

- **Built the entire** feature-rich flagship desktop application used by **100's of customers** for **automating workloads.**
- Developed **comprehensive unit tests** and documentation(15k LOC).
- Developed **RPA technologies** for nextgen healthcare (client)
- Implemented **Secure app state manager, auth tokens, backend database consistency** and a **sandbox for automation scripts**.

Pustakwaale - A bookstore on wheels   Pune, Maharashtra, India
Software Engineering Intern - **Analytics Team**   *Jan 2022 - May* **2022**
- Analyzed historical visitor data to **identify trends**.
- Developed **AI-driven scheduling algorithms** for exhibition bookings across Pune.
- Achieved up to **8% month-over-month profit growth** through optimized scheduling.
- Prioritized pop-up locations based on **100's of quantitative real-world metrics.**

Languages, Tools and Frameworks

- **C/ C++, Python, Go, Javascript,** Java, .NET, React, Linux, Git, Flutter, Electron, Next.js, **AWS, Docker, Kubernetes, Spark, Cassandra**, MongoDB, MySQL, DynamoDB, PostgreSQL.

Projects

StreamDS A Spark like distributed streaming platform ⏻ link   Aug 2024 - Present
- Building a Distributed system for CS 425 **from scratch in Go using sockets**, tested on a **10VM cluster.**
- Implemented **Data Sharding, SWIM protocol, Fault tolerance, Gossip Infection Mechanisms, Distributed File System with replication control**, and extensive unit testing.

Smart India Hackathon | Runner's Up | ⏻ link   Jul 2022 - August 2022
- Served as the **team's technical head**, developed server-less architecture using **AWS lambda and AWS API gateway** to upload the images capable of handling around **1000+ requests per second.**
- Built a fully functional mobile application using **flutter** for image uploading life cycle and light weight image quality enhancer on the server which runs on **canny edge detection** with added customization.

Rusty Vault | ⏻ link   Jul 2023 - Aug 2023
- A highly secure, simple to use and fast local **password manager** desktop app written using **Rust**
- Uses sound **cryptographic security fundamentals** to safeguard against bruteforce attacks

Beluga Interpreter | ⏻ link   Jan 2023 - Feb 2023
- **Designed an esoteric language** to directly interpret and run **turing machines** with standard TM notation as syntax
- Written in **pure C++,** supports features for combining multiple infinite tape turing machines

Delibay DBMS | ⏻ link   Feb 2023 - Mar 2023
- Modeled a database for a comprehensive and **complex delivery network.**
- The application was developed using **Nextron, Amazon RDS, MySQL.**

Research Experience

- **Exploring Speech Enhancement Models for Indic Language in Noisy Environments: A Benchmarking Study**   *Complete, Unpublished*

- **A Survey on Enhancing Deep Learning Based Speech Recognition Systems using Noise Suppression Techniques**   *Published*

- **Performance Analysis of Reinforcement Learning Algorithms on mitigation of Forest Fires**   *Complete, Unpublished*
  * Built an environment using Mujoco-world gen/cellular automata and trained AI agents using different reinforcement learning algorithms to analyze performance of subduing wildfires.

- **Integration of logical features with neural networks for controlled vs uncontrolled fire classification: a comparative study**   *Published*
  * Indian Journal Of Computer Science And Engineering Volume 14 Issue 4 ,2023

- **Homomorphic Encryption for privacy preserving machine learning**   *Ongoing*
  * Experimenting with Microsoft's SEAL and PySyft for evaluating performance on different ML models

Work Authorization - Authorized to work in the US/ US Citizen