Suumil Roy

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EDUCATION

Master of Science in Computer Science (30% merit scholarship), **University of Rochester,** Rochester, NY, USA Aug '22 – May '24

Courses: Parallel & Distributed Systems, Software Design, Algorithms, Visual Computing, Deep Learning, Scalable Data Science, AI & Ethics. (**GPA: 3.70/4.00)**
Teaching Assistantships: **Professor Sreepathi Pai** : Computer Organization & Design (Aug – Dec '22), **Professor David Tilson** : Big Data (Mar – May '23)

*Bachelor of Technology in Computer Science (minor, Intelligent Systems)***, Manipal Institute of Technology,** Manipal, KA, IN Aug '14 – May '18

Courses: Math, Data Structures, OOP, Operating Systems, Compilers, RDBMS, Networks, Web Dev (C#), Cloud, AI, ML, Soft Computing, NLP. (**GPA: 3.50/4.00)**
Professional Clubs: President: **ACM Manipal Chapter** (Improved Research Culture; Established ACM for Women) (2017), Member: **Leaders of Tomorrow** (2014)

WORK EXPERIENCES *(6 years of professional full stack SWE expertise across Cybersecurity, Finance & Healthcare Industries)*

Software Engineer Intern, **D&G Analytics, Inc. (Stealth Mode Cybersecurity Startup),** Sunnyvale, CA, USA May '23 – Apr'24

- Developed a new service to retrieve binaries from customer endpoints, enabling source code analysis to mitigate software supply-chain threats.
- Developed a new service to auto-install patches on Windows VM's (inside a Linux Kubernetes pod), collecting filesystem differentials for analysis.
- Transitioned AWS Lambda API's to Python's Tornado Framework, authenticating API endpoints through a custom OAuth2 Mix-In for AWS Cognito.

Graduate Research Assistant, **Professor Yuhao Zhu, Horizon Labs**, Rochester, NY, USA Jan '23 – May '23

- Developed interactive games to enhance color-blind individuals' vision and launched a public website for global access.

Software Engineer II, **Platform Engineering, BlackRock, Inc.,** Gurugram, HR, IN Jan '18 – Aug '22

(Joined as an intern and got promoted. Worked with teams concerned with Environment Management, Configuration Management and finally Release Management. The following projects are listed in reverse chronological order.)

- Prototyped a Drift Report System using historical release data to minimise production failures from overlooked software dependencies.
- Reduced global checkouts processing time by 30% by collaborating with the client services team to create a web application to track status of checkout jobs.
- Reduced Software Compliance bottlenecks by 50% by injecting release artifact quality data (inferred from CI) into the Release Management form.
- Developed a user interface for real-time tracking of software releases, accurately diagnosing 70% of all deployment issues.
- Implemented Release Management capabilities on ServiceNow as a proof of concept due to JIRA Server License expiration.
- Enhanced reliability in the Release process by automating canary and sensitive releases in the JIRA-based Release Management system.
- Implemented a data-driven design for Configuration Management that ensured 99% uptime and reduced database latency by 40%.
- Optimised computation of software disparities across client environments, slashing time from 18 hours to 2 mins via caching release metadata**.**

Undergraduate Research Assistant, **Professor Jayanta Mukhopadhyay, Indian Institute of Technology,** Kharagpur, WB, IN May '17 – Jul '17

- Enhanced scalability of IMediX (tele-medicine system) for cancer patients; later repurposed to tele-consult COVID-19 patients during the pandemic.
- Designed a rule-driven prescription system based on patient metrics, a strategic design targeted at cutting consultation durations by 30%.
- Developed an android application: PillReminder for the use cases of notifying patients about medication schedules and restocking alerts.

ACADEMIC PROJECTS

- *SynCode* (2023): Developed a **Distributed Version Control System** in **Rust** using design techniques from David L **Parnas's seminal papers** on **software design**.
- *CitibikeInventoryManager* (2023): Developed a pipelined **Data Intensive App** to track inventory of bikes & available docks at a station to forecast demand.
- *Paxos* (2023): Implemented a distributed key-value store based on the **Paxos** consensus algorithm in **Rust** from scratch.
- *Parallel & Distributed Video Compression* (2023): Achieved 2x speedup over standard compression algorithms via **OpenMP & MPI** parallelization frameworks.
- *png-to-jpeg-image-compression* (2022): Implemented and **profiled** image compression pipeline stages to find the rate determining step: **Quantization**.
- *DeepMusicClassifier* (2022): Trained a **GRU** model using **Keras** to classify music by genre using GTZAN Dataset, bettering benchmark ML algorithms by 2%.
- *Parallel-K-Means* (2017): Outpaced traditional **K-Means** tenfold by architecting the algorithm atop **OpenCL.**
- *Sequence Classification using LSTM* (2017): Trained a simple **LSTM** model to classify movie reviews using the IMDb Dataset with an accuracy of 88.54%.
- *Sarcasm Detection of Tweets* (2017): Surveyed several research papers, building on a **Random Forest Classifier** approach achieving 83.1% accuracy.

SKILLS

- *Developer Skills & Infrastructure***:** Agile, Debugging, Object Oriented Design, Test Driven Development, REST APIs, NoSQL/SQL Schema, Microservices, UI/UX, Documentation, Code Review, Git, Jenkins, Azure DevOps, Jira Server, Databricks, Amazon Web Services, Docker, Kubernetes, Nginx, Unix, Linux, Windows.
- *Programming, Scripting & Templating:* Python, Java, Rust, Go, C++, Typescript, JavaScript, Groovy, Shell, SQL, Perl, HTML, CSS, XML, JSON.
- *Frameworks & Libraries***:** Asyncio, Tornado, Flask, Django, Spring Boot, Spring Data JPA, Hibernate ORM, Figma, Node.js, React, Angular, Cuda, MPI, OpenCV, PyTorch, NLTK, MLFlow, Apache Spark, Apache Hadoop, Apache Hive, Apache Kafka, LLMs, Robot Operating System (ROS).
- *Databases, Data Management & Search***:** PostgreSQL, SQLite, Oracle, MSSQL, MySQL, Deltalake, Sybase, Redis, MongoDB, Apache Ignite, Elasticsearch.
- *Soft:* Analysis, Best Practices, Communication, Collaborative, Detail-Oriented, Feedback, Growth-Mindset, Innovation, Leadership, Ownership, Self-Starter.

HACKATHONS, ACHIEVEMENTS & CO-CURRICULAR ACTIVITIES

- *IEEE Create-a-thon* **(**2023**)**: **Stood 2nd** for text-based multilingual health recommendations system built on **Twilio, Google Translate** & **OpenAI** API's.
- *AngelHack* (2017): Pitched a **self-learning speech agent** Caller.ai (machine learning model built on wit.ai) targeted to reduce any call centre's operational cost.
- Mahindra's $1M Driverless Car Challenge **(**2016-17**)**: **Finalist** out of 259 teams; Implemented a **relaxed A*** algorithm for global path planning using **ROS**.
- *Olympiads(2010, 2011)*: **Rank #7** and **Rank #37** in Junior Science Talent Search Examination & National Talent Search Examination (Round 1) respectively.
- *Model United Nations (MUN) (2012):* Secured **High Commendation, Special Mention** for representing **Brazil** in **UNHRC** at AIMUN, ModMUN respectively.
- *Lead Vocalist/Choir(2008 -):* The Last Verdict (High School), The Empyrean (Undergrad), School of Rock (BlackRock, Inc.), School Choir.
- *Cinema/Dramatics (2014, 2016):* Ambiguity (Director, Screenplay), AAINA Dramatics (Member).