

# Sainath Talakanti

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## TECHNICAL SKILLS

**Programming Languages** : Java, C, Python, Kotlin, C++, Rust, Scala

**Technologies** : ReactJS, NodeJS, Spring Boot, React-Native, HTML, CSS, JavaScript/Typescript, Docker, Kubernetes, Data Science, Computer Vision, AWS, Socket Programming, Apache Tomcat

**Databases** : MySQL, PostgreSQL, Neo4j, MongoDB, Redis

**Others** : Git, NPM, Gradle, Maven, Cargo

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## WORK EXPERIENCE

**Virtusa**  
*Student Intern*

*Hyderabad, India*  
*January 2023 - April 2023*

- Developed a currency conversion application using React JS.
- Collaborated with a team of ten, strengthening teamwork, communication skills, and project development expertise.

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## PROJECTS

**RegPattern2Vec: Link Prediction in Knowledge Graphs**

*Sep 2024 - Present*

**Technologies:** Neo4j, Java

- Developed a Neo4j plugin for generating graph embeddings.
- Designed a mechanism to convert Regular Expressions into DFAs for analyzing patterns in knowledge graphs.
- Transformed patterns into vector representations for use in machine learning pipelines for link prediction, node classification, and other applications.

**Prediction of Impacts of Climate Changes on Crops**

*Oct 2024 - Dec 2024*

**Technologies:** Python, Neural Networks, Jupyter

- Built a data science application to predict environmental impacts on crop yields.
- Preprocessed large, noisy datasets to ensure high-quality analysis.
- Trained and evaluated multiple predictive models, including regression models and neural networks.

**RustFL: A Federated learning Model using Rust**

*Aug 2024 - Dec 2024*

**Technologies:** Rust, Convolutional Neural Networks, Pytorch, Libtorch, Docker

- Designed a federated learning framework for secure, asynchronous training of machine learning models with privacy preservation.
- Implemented features like Differential Privacy, Secure Multiparty Computation (SMPC), and Asynchronous Communication.
- Created a Docker image for seamless deployment across diverse environments.

**Comparative Analysis of CNN Algorithms for Image Classification**

*Mar 2024 - May 2024*

**Technologies:** Python, Convolutional Neural Networks, Tensorflow, Image Classification

- Analyzed the performance of CNN models (AlexNet, VGGNet-19, ResNet) on datasets such as CIFAR-10, CIFAR-100, and ImageNet.
- Conducted training, testing, and comparative analysis to evaluate model performance across different datasets.

**A Dynamic Task Load Balancing Scheme for Miscellaneous Clouds**

*Mar 2023 - July 2023*

**Technologies:** JSP(Java Servlet Pages), HTML, CSS, MySQL, REST API, JDBC

- Developed a dynamic model with a task-based Load Balancer that proactively distributes tasks among VMs and expects utilization capacity of each VM using finite state Markov chain rule process
- The aim was to reduce the workload on Virtual Machines, increase the average response time and makespan of the system.

**Privacy and Anonymous Key Agreement for Cloud Computing**

*Sep 2022 - Jan 2023*

**Technologies:** Java, JSP(Java Servlet Pages), HTML, CSS, MySQL, REST API, JDBC

- Developed a KGC(Key Generation Center, a trusted third-party) that takes user and cloud provider's identity and generates long term partial private keys for each that can be used for authentication.
- The aim was to introduce a protocol that establishes a security to public channel for secure communication between Cloud users and Cloud service providers by adding TLS Handshake protocol(0-RTT), Certificate-less cryptography, and a strong long key agreement to the existing AKA(Authenticated Key Agreement) protocols.
- This protocol not only satisfies the traditional security attributes (e.g., known-key security, unknown key-share), but also strong security guarantees, i.e., user privacy and bad randomness resistance.

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## EDUCATION

**The University of Georgia** (CGPA: 3.44/4)  
*Master of Science in Computer Science*

*Athens, Georgia*  
*Aug 2023 - Present*

**Guru Nanak Institutions Technical Campus** (CGPA: 3.49/4)  
*Bachelor of Technology in Computer Science & Engineering*

*Hyderabad, India*  
*Aug 2019 - July 2023*