

# Swebert Correa

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## EDUCATION

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- **Georgia Institute of Technology** Atlanta, Georgia  
● *Master of Science in Computer Science; GPA: 4.0/4.0* Aug 2024 - May 2026  
*Coursework: Distributed Computing, Database Implementation, Computer Networks, Machine Learning*  
*Graduate Teaching Assistant in Natural Language Processing*
- **College of Engineering, Pune (COEP)** Pune, India  
● *Bachelor of Technology in Computer Engineering; GPA: 9.05/10.0* Aug 2018 - Oct 2022  
*Coursework: Operating Systems, Distributed Systems, Computer Networks, Database Systems, Compilers*

## SKILLS

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- **Languages:** C, C++, Python, Java, Go, x86 Assembly, TypeScript, Bash (Linux Shell Scripting), SQL
- **Technologies:** Kubernetes, Docker, Postgres, AWS, Azure, GDB, React, FastAPI, PyTorch, Git, Jenkins

## EXPERIENCE

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- **Rakuten Symphony** Pune, India  
● *Associate Software Engineer | C/C++, Python, Kubernetes, PostgreSQL* Jun 2022 - Jul 2024
  - Engineered an in-house object storage system delivering ~ 70% feature parity with AWS S3
  - **Data Rebuild and Resync:** Led the design and development of data recovery subsystem for object storage by integrating erasure-coding, creating disk-sets, and scanning millions of files across hundreds of disks
  - **Server-Side Encryption:** Engineered the mechanism to encrypt objects at rest using the customer-provided key, without disrupting active-active replication of the erasure-coded objects across heterogeneous sites
  - **Cluster Manager:** Co-developed the event-loop based orchestrator service of object storage with team-lead to manage the life-cycle of different services like data and metadata stores, and gateways
  - **Backup and Garbage Collection:** Resolved memory and reference leaks in differential snapshots
  - **Microservice Diagnostic Utility:** Collated data from various microservices to determine the in-flight IO operations on all distributed volume managers of the cloud native block storage via pub/sub model
- **Citi Bank** Pune, India  
● *Technical Summer Analyst | AWS Lambda, PowerShell* May 2021 - Jul 2021
  - **DevOps:** Created CI/CD pipeline using PowerShell to email results to all stakeholders with single click
  - **Optimization:** Leveraged various wait strategies to achieve a 5x reduction in runtime from 30min to 6min

## PROJECTS

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- **Ext2 File System for MIT xv6 OS** | *Operating Systems, C*
  - Developed Ext2 file system, implementing buffer cache management, tree-based searching and logging
  - Updated ATA interface driver to utilize the secondary bus to enable data transfer with the Ext2 disk
  - Implemented a Virtual File System with new file-system APIs, updating corresponding syscalls
- **External Sorting for Databases** | *Database Systems, C/C++*
  - Leveraged offset-value codes and storage hierarchy to reduce column comparisons in a cache aware manner
  - Implemented k-way external merge sort using tournament-tree based tree-of-losers optimizing for scale
- **Multimodal Conversational Agent with RAG** | *Large Language Models, Python, Ollama*
  - Built multimodal chatbot using LLMs with a RAG pipeline utilizing vector DB extentions for context
  - Fine-tuned using LoRA and optimized dialogue quality with reinforcement learning for 92% user rating

## PUBLICATION

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- **Human-Computer Music Co-Production Using Genetic Algorithms** Best Paper Award  
● *IEEE International Conference on Computing, Communication, Security and Intelligent Systems* 2022