

# 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*  
*Specializing in Computing Systems; Graduate Teaching Assistant*
- **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, CUDA, Java, Kotlin, Go, x86 Assembly, JavaScript, Bash Shell Scripting, SQL
- **Technologies:** Kubernetes, Docker, Postgres, AWS, Azure, gdb, strace, LLVM, Flask, PyTorch, Git, Jenkins

## EXPERIENCE

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- **Amazon (Alexa Domains)** Seattle, WA  
*Software Development Engineer Internship | Kotlin, Dagger, Fargate, DynamoDB* May 2025 - Aug 2025
  - **Notification Service:** Redesigned real-time service handling 150+ TPS to support guided AI device setup in Alexa Plus increasing render rate from 3.84% to over 50% by unifying both push and pull mechanisms
  - **Onboarding Simplification:** Reduced overhead for sending different notification types by enabling services to integrate with a single microservice instead of more than five, saving about two weeks of onboarding time
- **Physical Internet Center Lab (Prof. Benoit Montreuil)** Atlanta, GA  
*Graduate Student Researcher | PostgreSQL, Python* Jan 2025 - May 2025
  - Designed range and hash based partitioned tables using GiST indexes improving query time by about 4x
  - Fine-tuned PostgreSQL configurations for memory management, WAL, and parallel queries for OLAP
- **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
  - **HTTP Streaming Server:** Developed an asynchronous event-based streaming HTTP server in C to provide object store REST APIs like GetObject, PutObject, etc. while handling MIME and URL encoding
  - **Data Integrity and Recovery:** Efficiently scanned across terabytes of data on hundreds of disks to regenerate data lost due to failures or partitions by employing erasure-coding and load balancing with disk-sets
  - **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
- **Citi Bank** Pune, India  
*Technical Summer Analyst* May 2021 - Jul 2021
  - **DevOps:** Created CI/CD pipeline using PowerShell to email results reducing 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
  - Implemented a Virtual File System with new file-system APIs, updating corresponding syscalls
- **Intel 8085 Simulator | Compilers, C/C++**
  - Implemented a two-pass assembler to compile the 8085 assembly instructions into executable machine code
  - Developed a virtual processor to simulate the ISA and run the machine code with step-wise execution trap
- **Memory Allocator | Operating Systems, C**
  - Developed a thread-safe malloc family of functions replacement using both sbrk and mmap system calls
  - Implemented segregated free-list and free space management algorithms like best-fit, worst-fit and first-fit