Swebert Correa

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Education

- **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

- **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

- **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 $\sim$ 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

- **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