FREDERIK HOFFMANN

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EXPERIENCE

AppStem   Nov 2023 - Present
Backend Software Engineer, Contract   *Remote, CA*
- Develop RESTful APIs (TypeScript), docs (Swagger) and data models (PostgreSQL) to support user authentication, media uploads, posts, and interactions for a greenfield Node.js-based social media app
- Identified and mitigated error-handling risks in legacy codebase by refactoring critical database operations into atomic transactions, ensuring data consistency and system reliability

Amazon Web Services (AWS)   Aug 2022 - Jun 2023
Software Development Engineer   *Remote, CA*
- Developed access control microservice (Java, JUnit, DynamoDB). Allows customers (56K WoW) to enforce fine-grained authorization by validating resource metadata against user permissions
- Improved code coverage (0 to 100%) and release velocity by coupling existing threat template library with parameter injection library to create automated security test suite (Python) for 13 internal/external APIs
- Implemented feature to enable cross-user resource access within AWS Organizations by using Java, DynamoDB, SQS, SNS to register, process, and cache roster updates to the organization
- Reduced on-call MTTR by creating analysis scripts, alarms, logging (Ruby, Python)
- Authored 3 design documents and drove team consensus on reviews, new feature design

Lockheed Martin   Jul 2018 - Jul 2022
Systems Software Engineer, Infrared Imaging   *Goleta, CA*
- Created image-processing suite (Python, NumPy), enabling validation of new camera system. Obsoleted need for airborne testing, saving months of planning and thousands of dollars
- Improved product yield up to 52%, reduced costs by $1K+ per run by developing camera performance analysis software and leading failure review board to investigate chip defect
- Led technical projects, 4 technicians, 2 test engineers

M.S. PROJECTS

Parallel Distributed File System | *C++14 w/ STL, gRPC, Docker, Linux, WSL2, Protocol Buffers*
- Distributed multi-threaded file server/storage
- Lists, uploads, downloads, deletes shared files across multiple clients (threads)
- Utilized gRPC/Protocol Buffers to communicate actions across clients/server
- Implemented mutexes/other synchronization constructs for thread safety

CPU Scheduler/Memory Coordinator for Virtual Machines | *C, Linux, Libvirt, Azure*
- Balance VCPU utilization across a set of physical CPUs on a cloud-based Azure instance running 8 virtual machines. Use a greedy knapsack-based pinning scheme to balance utilization across physical cores
- Use memory ballooning techniques to determine when to provision/reclaim memory to and from host

SKILLS

Languages: Python, TypeScript, Java, C, C++, C#
Cloud: AWS, Azure
Misc: PostgreSQL, Linux, Git, PyTest, REST APIs

EDUCATION

Georgia Institute of Technology
Master of Science in Computer Science   *May 2024*
   Overview: Operating Systems, Computer Architecture, Algorithms, Artificial Intelligence, Computer Networks, Information Security, Machine Learning

University of California, Santa Barbara
Bachelor of Science in Physics