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# Johannes Schlumberger

*Staff Software Engineer (10+ years) with research background*

## Summary

**Highly skilled software engineer with 10+ years industry experience in Ruby on Rails development, testing optimization, backend engineering, devops, TDD, CI/CD, performance optimization, and cloud-based architectures. 7 years of delivering strong results working fully remote in an agile, fast-growing, B2B SaaS environment. Rich academic background in computer security, distributed systems, programming languages, algorithms, ...**

## Vocational

**Staff Software Engineer, *Appfolio Inc.*, Santa Barbara, USA.**

**2016–2023**

- **DevOps** resilient, cloud based, scalable web applications
  - Redesigned and implemented **Email and SMS communication** systems as queue-based, asynchronous, **scalable cloud-based applications with automatic failover and replication**.
  - **Optimized Ruby/Rails and SQL performance**, resolving slow page load and request times.
  - Achieved **system resilience during AWS outages** with no downtime or data loss.
  - Designed and introduced a **circuit breaker pattern** for client applications.
  - Addressed bottlenecks in **fast growth environment** and **solved complex distributed system** issues.
- Reduced flaky builds on **CI** from 60% to less than 1% by addressing underlying problems and fixing hundreds of tests, greatly **improving DX**.
- **Cloud storage transition**
  - Transitioned multiple live systems from **multi-tenancy to single DB** with **sharding** and replication.
  - Seamlessly and transparently **migrated all customer file data to cloud** storage.
- **Empowering others** by multiplying knowledge
  - Formulated **architectural proposals** to enhance efficiency, maintainability and ability to reason.
  - Authored **in-depth technical case-studies** on common engineering problems to level up coworkers.
  - Authored practical **flaky test guide** to teach common anti-patterns in testing.
  - Introduced **blame-free post-mortems** to unlock organizational learnings from technical setbacks.
  - **Mentored** multiple engineers without job experience, enabling their growth into senior and staff level.

**Sr. Software Engineer, *Appfolio Inc.*, Santa Barbara, USA.**

**2013–2016**

- **Payment Systems**
  - Contributed to the development of a **multi-modal payment system**, including API integrations and state machine implementation for **end-to-end reliable payment processing**.
  - Implemented sandbox simulation of **banking APIs** to enable regular QA regression testing.
  - Developed an internal gem to **harden payment-processing applications**.
- Implemented **High Availability** improvements for the search system and re-architected **reporting and billing tools** to enable cloud-transition.
- Improved test efficiency, implemented parallel testing, and introduced build result emulation and other **improvements for CI/CD** systems, resulting in heightened result confidence and faster turn-around time.
- Regular **updates and maintenance**, e.g. upgraded 50+ applications and 120+ gems to new Rails/Ruby versions without disruptions, allowing product teams to remain focused on product improvements.

**Research Assistant, *UCSB Security lab.*, Santa Barbara, USA.**

**2010–2013**

Approximative Algorithms, Anonymity Networks, **Machine Learning, Malware Analysis, Malware Detection, Security, Academic Writing**

**System Administrator, *Friedrich-Alexander-Universität*, Erlangen, Germany.**

**2005–2010**

170 workstations, 20 servers, 4700 users, **Linux client/server administration, network operations, maintenance and support, hardware procurement, implement/maintain/adapt custom administration tools**

## Selected Skills

**Problem spaces:** ACID, Background jobs, CAP Theorem, CI/CD, Concurrency, Cyclo-matic complexity, Failover, HA, Indices, N+1, OOP, Performance, Query Optimization, Re-plication, SOLID, Server Security, Sharding, Threads

**Testing:** CI/CD, functional testing, integration testing, minitest, TDD, test stability, unit testing

**Foundations:** Agile, Algorithms, Complexity, Cryptography, Databases, Data structures, De-sign Patterns, Math, Operating System, Problem solving, Security, Virtualization

**Languages:** C, Java, Ruby, SQL, bash

**Backend:** APIs, Client/Server, DNS, HTTP, Functional programming, I/O, IPC, Memory Management, Microservices, Monoliths, MySQL, POSIX, PostgreSQL, Processes, Queues, REST, Redis, Resiliency, SOA, Transactions

**DevOps:** AWS, BSD, Cloud, Container, FTP, Filesystems, HTTP, iptables, Linux, networking, SMTP, SSH, Shell

**Tools:** CircleCi, git, github, Gsuite, Kanban, NewRelic, Pivotal Tracker, Rails, Rollbar, Ruby-mine, SCRUM, Slack, TeamCity, Trello, UML, vim

## Education

**PhD Program Computer Science (MSc), University of California Santa Barbara, 2010–2013**  
Santa Barbara, USA, **GPA: 3.98.**  
Cloud computing, Distributed Systems, Cryptography, Program Analysis, Computer Architecture, Operating Systems and Security.

**Computer Science Diploma (MSc eqv.), Friedrich-Alexander-Universität, 2004–2010**  
Erlangen, Germany, Grade 1.1 (**distinguished**).  
Computer Architecture, Compiler Construction, Operating Systems and System Security; Astrophysics/Medical Computer Science minors

## Academic Work

**I2P Network:** Paper on breaking anonymity in the I2P network (accepted RAID'13).

**Jarhead:** Paper on analyzing and detecting malicious Java applets. (accepted ACSAC'12).

**MIFARE:** Student thesis developing and implementing practical attacks on the MIFARE card system used in train tickets, payment systems, physical access control,...

**SSE-MD5:** Student paper on low level optimization for password recovery. **Best paper award.**

**Lecturer:** Stand-in replacement for security and operating systems courses.

**Defcon CTF:** Two time **finalist at the Defcon capture the flag** competition.

## Languages

**German:** native language, text and speech      **English:** fluent, text and speech

## References

Jim Herzberg, Software Architect, jimmiesh@gmail.com, +1 503 253 5535.

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