Ralf Rantzau

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github.com/xralf/resume

Objective

Find a position where I will design and build products and services involving:

- **Blockchain**
- **Distributed systems**
- **Databases (SQL / NoSQL)**
- **Real-time analytics / AI**

Ongoing personal projects

Redleg: A privacy-preserving blockchain ledger (Golang)

- Goal: Build a time-series No-SQL database system on top of the ledger

Grizzly: A data stream query processor for real-time analytics (Golang)

- Aggregations and stochastic algorithms
- Uses Cap'n Proto, ANTRL4

Tech skills

- Golang, C/C++, Python, Java, TypeScript, SQL
- PostgreSQL, MySQL, DB2, MongoDB, DynamoDB, Cassandra, Kafka, Snowflake
- AWS, GCP

Work experience

Tradewing | *Senior Software Engineer* | 9/2023-7/2024

- Designed No-SQL MongoDB data models and ETL workflows to migrate customer data
- Built GraphQL APIs and services to manage payment information in Stripe
- Improved and redesigned services for in-person and online event management
- Added metrics for real-time video stream analytics and built data models to collect and aggregate metrics

Lark Health | *Senior Software Engineer — Backend* | 4/2021-7/2022

- Built micro-services in Golang for on-boarding partners to allow patients to order health devices in the Lark app in Golang
- Created relational and No-SQL database models for new backend services (MySQL, DynamoDB)
- Deployments using Docker & Kubernetes

Lacework | *Senior Software Engineer — Data platform* | 6/2020-11/2020

- Enhanced query processing feature for the cloud security data pipeline using Java

Cisco | 2012-2019

1. *Tech Lead — Blockchain platform* | 2018-9/2019

- Cisco Blockchain — Platform backend programming in Golang
- Helped design, build, and deliver a green-field enterprise DLT platform inspired by Hyperledger Fabric
- Built blockchain ledger components
- Built blockchain state store services (based on ArangoDB)
- Built services to enable an industry-first privacy-preserving No-SQL ledger in Golang with role-based access control (RBAC)
- Built proofs-of-concept for prospective customers
- Deployments using Docker & Kubernetes

2. *Tech Lead — Cloud telemetry and log analytics* | 2014-2018

- Cisco Zeus — Database backend programming, built BI reports and tools, telemetry & logs crunching with Kafka, Storm, Cassandra
- Cisco Container Platform — Built infrastructure to capture telemetry & logs
- Cisco Cloud Center — Built infrastructure to capture telemetry and logs using containers
- Delivered analytics micro-services for product usage optimization and management
- Delivered product features based on stochastic streaming algorithms over telemetry data (count-min sketch, hyperloglog sketch)
- Managed team to deploy a multi-cloud version of Zeus with Spinnaker as well as Cisco Cloud Center
- Managed team to build a telemetry router for logs, metrics, alerts, and health checks
- Designed and built backend infrastructure for processing and metrics/time-series data
- Patents and publications

3. *Senior Software Engineer — Real-time analytics* | 2012-2014

- Cisco Connected Streaming Analytics (CSA) — Stream engine programming in C
- Customer PoCs with Cisco CSA
- ML algorithms integration into real-time analytics pipeline, algorithms were written in R
- Edge and fog computing — Analytics for IoT (retail, stadiums)
- Delivered customer solutions based on Connected Streaming Analytics based with machine learning
- Collaborated with large retail customer on store optimization problems (using lots of sensor technology)
- Predicted and optimized retail shopper checkout queues
- Optimized retail store layout based on purchase patterns and shopper tracking
- Integrated machine learning algorithms into stream database queries using R and user-defined-functions
- Patents & publications

Aalborg University, Denmark | *Assistant Professor — Database systems* | 2010-2011

- Internet technologies lecture
- Database introduction lecture
- Renewable energy data management research

Truviso (acquired by Cisco) | *Software Engineer — Data streams & real-time query processing* | 2009-2012

- Truviso TruCQ — Stream engine programming in C (think of PostgreSQL with data streams)
- PostgreSQL query optimization
- Built PostgreSQL database kernel features for real-time stream processing such as sessionization
- **Acquired by Cisco** in 2012

IBM Silicon Valley Lab | *Senior Software Engineer — RFID data management & BI* | 2006-2009

- IBM RFID Information Center — Database backend and middleware programming in Java

- IBM Cognos — Data governance in data warehouses, SQL query optimization
- Patents & publications

IBM Almaden Research Center | *Post-doctoral Scientist — Data privacy technology* | 2004-2006

- Hippocratic Database — Enforcing privacy policies in relational database (DBMS agnostic)
- Graph databases — Privacy technology for large multi-media streams
- Search engines — Context-sensitive ranking of web search results
- Patents & publications

Education

- *Ph.D. Computer Science* | University of Stuttgart, Germany | 2001-2004
- *M.S. Computer Science* | University of Stuttgart, Germany | 1991-1997

Certifications

- Blockchain Basics by University at Buffalo & The State University of New York, Coursera, 2/2020
- Neural Networks and Deep Learning, Coursera, 1/2018
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization, Coursera, 1/2018
- Serverless Data Analysis with Google BigQuery and Cloud Dataflow, Coursera, 1/2018

Awards

- Best Paper Award: Laws for Rewriting Queries Containing Division Operators (Ralf Rantzau, Christoph Mangold), 22nd International Conference on Data Engineering (ICDE), Atlanta, Georgia, USA, 2006
- Patent Achievement Award, IBM, 2009