Saul Reynolds-Haertle

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Overview

I am a strong individual contributor with experience in professional software engineering and academic computer science and robotics research. I thrive on novelty, eagerly engage challenges, have a vast breadth of knowledge, prototype rapidly, drill deeply, communicate clearly, and excel at delivering exotic solutions to exotic problems.

Skills

- Languages: Python, C++, SQL, Rust, Perl, C#, Lisp, Ruby, Bash, Java. If it has documentation, I can build with it.
- Technologies: Linux, git, GNU Emacs, relational databases, Google Borg, CAN bus.
- Concepts: Software engineering, robotics, API design, code quality, data structures and algorithms, distributed computing, databases, big data pipelines, software reliability, randomized algorithms, artificial intelligence, programming language design, AI planning, real-time constraints, linear algebra, linear controls theory, computer vision, embedded development, technical writing and documentation, science fiction literature and writing.

Experience

Software Engineer — May 2018 – Current
Google — San Francisco, CA

Built and maintained internal tooling and infrastructure to measure and ensure data quality in the Knowledge Graph.

- Took ownership of a service for evaluating quality of production data plus associated library of >10k handwritten data quality constraints. Designed and implemented code and interface changes to continue constraint checking at >200k QPS through API changes, evolving data quality needs, and major migrations e.g. from Bigtable to Spanner.
- Participated in on-call rotation for data quality evaluation infra on the critical path for Knowledge Graph data ingestion, responding to incidents and writing docs and post-mortems to meet latency SLAs on a Big Data ETL pipeline.

Software Engineer — January 2017 – May 2018
Cybraics — Atlanta, GA

Part of a small team that owned application development and business logic, building tools to manage presentation of algorithmic results to the SOC team for analysis and review and to customers for action.

- Used Agile methodology to maintain startup pace and responsiveness to changing business requirements through application release and growth from 10 kloc to 45 kloc.
- Delivered a secure and performant webapp backend using Ruby on Rails and PostgreSQL to implement a RESTful API.

Software Developer — June 2015 – December 2016
athenahealth — Atlanta, GA

Part of a team that owned and scaled an OLAP cube system from alpha launch to 5M jobs per morning as part of a reporting and analytics platform in athenahealth's revenue cycle management and medical billing product.

- Took ownership of cube fill/backfill planner and executed comprehensive reverse-engineering, unit-testing, redesign, and rewrite. Defects in production fell from 2-3/month to 0, scheduling features and changes cost 80% less dev time.
- Delivered significant performance and reliability improvements: Profiled system to improve large cross-context queries from ~2000s to <30s, doubled throughput by deferring cleanup of stale data to off-peak times, added atomicity and idempotency to increase resilience.

Research Assistant — September 2008 – May 2015

Georgia Institute of Technology — Atlanta, GA

Author on 4 publications: Pallet packing, mobile robotics, haptic interfaces. See https://goo.gl/o3jR7R

- Implemented device drivers, motor controllers, inverse kinematics algorithms, and a teleoperation user interface for a humanoid robot optimized for heavy-duty manipulation planning research.
- Researched manipulation planning algorithms for improvising tools from environmental objects.
- Built wearable computing application that uses touch to teach Morse code without the user's conscious attention.

Education

Bachelor of Science in Computer Science — May 2012

- Georgia Institute of Technology, Atlanta, GA
- Specializations in Artificial Intelligence, Computer Science Theory, Embedded Devices
- GPA 3.86; degree awarded with Highest Honors
- Dean's List (all semesters); Faculty Honors (2 semesters); President's Undergraduate Research Award.
- Courses: Introduction to Artificial Intelligence, Special Topics Humanoid Robotics, Advanced Design and Analysis of Algorithms, Machine Learning, Prototyping Intelligent Appliances (total 129 credit-hours)

Student: Doctor of Philosophy in Robotics — August 2012 – May 2015

- Georgia Institute of Technology, Atlanta, GA
- National Science Foundation Graduate Research Fellowship Program Fellowship
- Courses: Computer Vision, Artificial Intelligence, Linear Systems and Controls, Video Game Design (total 61 credit-hours)