Christopher I. Hendrie christopher@recursiveinsight.com

Objective: Lead great teams to build superb software to solve important problems.

Leadership Skills

- building trust across the full spectrum of stakeholders
- restoring transparency by surfacing "ground truth" about software, processes, and people
- identifying risks and opportunities early, drawing on broad & deep experience
- energizing software development teams, inspiring excellence and velocity

Technical Skills

- designing and building novel, massive scale, highly availability distributed systems
- multi-paradigm software development in many languages including Python, C++, Java, etc.
- cybersecurity by design: thorough analysis to address risks early
- both AI paradigms: statistical machine learning and formal methods
- inventing and implementing high performance algorithms and data structures

Experience

Behavox, Montreal, Quebec 11/2022 - 10/2023
Senior Engineering Manager, Platform

- Led the development of the next generation Platform for AI-based compliance and risk, supporting a full spectrum of on-premise to cloud-native deployment modes
- Managed two teams spanning the full backend pipeline from integration through processing
- Pushed the platform architecture and development process to new levels of agility, enabling rapid and successful go-to-market for transformative LLM-based product

Recursive Insight, Georgian Bluffs, Ontario 10/2018 - present
Founder, Chief Technologist

- Helping enterprise executives make better-informed strategic decisions about the future of their internal IT software systems, including build-vs-buy and evolve-vs-rewrite
- Assessing software systems and IT organizations from top to bottom — code quality, scalability, capabilities of teams and individuals, adherence best practices, security risks, etc.
- Leading design and architecture for major multi-vendor development contracts involving multiple languages and platforms
- Providing critical expertise for ultra-large-scale distributed systems and cloud computing

DrFirst, Rockville, Maryland
Senior Platform Engineering Manager, Rcopia 11/2016 - 8/2018

- Responsible for development and delivery of the flagship Rcopia e-prescribing platform
- Managed three teams with 20 engineers in total, spanning backend web services, new client-side web application, and legacy server-side web application
- Stepped in to dive deep where specific technical challenges were beyond the team's ability to resolve — for example, isolation of components and styling in the new web application
- Instituted a culture of transparency, authenticity, and positive realism

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Amazon Web Services, Herndon, Virginia

Senior Software Engineer, AWS Security Automated Reasoning Group 06/2015 - 10/2016

- Invented and built a new service which formally verifies properties of security policies written in the domain-specific AWS access control language by translating them into SMT (Satisfiability Modulo Theories). It answers questions such as "is policy A strictly less permissive than policy B?" or "does policy C make this S3 bucket world-writeable?", providing proofs or counterexamples as appropriate. Initially used internally, it's now the engine behind powerful security policy checks available to all AWS customers, addressing a major area of vulnerability.
- As a founding member of the group, brainstormed other novel product ideas which apply formal methods to artifacts other than code. These projects found success as internal services and at least one of them has been released publically.
- Provided mentoring, weekly "tribal knowledge" Q&A sessions, and software engineering advice for the influx of freshly hired ex-academics, helping them hit the ground running in a radically different industrial culture.

Senior Software Engineer, EC2 Networking 03/2011 - 05/2016

- Designed and implemented core parts of many public-facing features and services, including VM Export, EBS cross-region copy, and the high-availability networking features underlying Elastic File System.
- Inherited technical leadership of a multi-year, cross-site project to split a core single-point-of-failure control plane into a complex distributed system — without downtime or customer-observable changes in behavior. Used impossibility results to demonstrate inescapable flaws in the existing design, then invented new patterns and protocols which achieved the best possible compromises between consistency and availability. Championed the successful use of formal methods (TLA+) to check consistency of our new protocols.
- As the first Senior Software Engineer at the Herndon site and the "go to" person for tricky technical questions, I consulted on and reviewed most of the major systems designed there, and was often able to suggest substantial simplifications.
- Diagnosed and patched long-hidden problems such as lock contention under critical time pressure during customer-affected events, while on-call or paged in as a domain expert.

Google, Mountain View, California. *Senior Software Engineer.* 07/2004 - 03/2009

- Recipient of the first Google Founders Award, awarded to the small team which created and launched a system which dramatically improved both quality and revenue of search advertisements
- Re-implemented the infrastructure of a large-scale (even by Google standards) distributed machine learning system, allowing it to scale by another order of magnitude
- Designed and implemented key portions of a new large-scale distributed file storage system
- Contributed to multiple cross-cutting groups and activities: C++ readability review, C++ style evolution, testability initiative, interviewing, and promotions
- Contributed performance improvements, corrections, and simplifications to core algorithms and data structures used in almost every Google product

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Bioinformatics Solutions, Waterloo, Ontario, Canada. *Product Manager*. 06/2002 - 06/2004

- Responsible for long-term strategy and lead development of Java-based mass spectrometry product *PEAKS*
- Invented, implemented, and shipped a new algorithm for combining *de novo* sequencing and database-based protein identification, opening up new markets for the product

GO DSP / Texas Instruments, Toronto, Ontario, Canada. *Software Architect.* 10/1998 - 04/2001

- Designed and implemented a C++ interpreter for debugging TI Digital Signal Processors
- Set strategic direction while representing TI Canada on the international Technology Leadership Team
- Implemented an intensive C++ training program for new employees

Gallagher Power Fencing Systems, Owen Sound, Ontario, Canada. *Developer*. 1994 - 1996, 1998
CrossKeys Systems Corporation, Kanata, Ontario, Canada. *Software Designer*. 1996

Selected Patents

"Log-based distributed transaction management", US Patent No. 9904722 2/2018
"Virtual network interface multiplexing", US Patent No. 9882968 1/2018
"Private network peering in virtual network environments", US Patent No. 9807057 10/2017
"Bandwidth metering in large-scale networks", US Patent No. 9672503 6/2017

Fun Stuff

International Conference on Functional Programming (ICFP) Contest. **1st place**. 2006, 2007, 2008
Google Code Jam World Finals, Mountain View, California. **2nd place**. 2003
ACM Intercollegiate Programming Contest World Finals, Atlanta, Georgia. **3rd place**. 1998
International Mathematics Olympiad, Hong Kong, as part of Team Canada. 1994

Education

University of Waterloo, Waterloo, Ontario. Independent Studies. 2001
University of Waterloo, Waterloo, Ontario. Pure Math and Computer Science. 1994 - 1998