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Summary

Applying an engineer's problem solving mindset to a wide array of problems across all disciplines.

Expertise: machine learning, data science, information retrieval, natural language processing, crowdsourcing, data mining, distributed systems, operations, manufacturing, supply chain, planning, forecasting, logistics, transportation, consumer products, ecommerce, experimentation, agile development, recruiting, organizational design, career mentoring, diversity and inclusion, P&L, IPOs, angel investing, advising, seating charts, tacos.

Experience

Blue Apron

New York, NY • May 2016 - Present

Vice President, Engineering

Responsible for all internally-built technology, including consumer products, marketing, customer support, culinary design, forecasting, planning, inventory, manufacturing, packing, logistics, transportation, data warehousing, devops, product management, and project management. Member of executive leadership team, responsible for company strategy and day-to-day operations.

Key accomplishments:

- Grew a world-class engineering team from 30 engineers to 100+ over 2 years. Developed or hired line managers and directors across multiple functions, including application development, operations software, QA, DevOps, machine learning, and data warehousing.
- Developed deep relationships with stakeholders across every department in the company, including marketing, operations, fulfillment, supply chain, culinary, finance, and legal. Collaborated almost every day with other functions to find "better than the sum of the parts" solutions using ideas from both sides.
- Oversaw the development of a new ECommerce platform, culinary planning and purchasing suite, and Warehouse Management System to support a dramatically expanded product line, giving customers flexibility to choose between more recipes and flex the number they receive each week.
- Built a machine learning team to rebuild our forecasting system from scratch to handle significantly more product complexity. The new system's higher accuracy across multiple regions for both long- and short-term forecasts improved margins by millions of dollars due to lower food waste, higher labor efficiency, and longer-term contracts. Guided the same team to generalize that system to provide product recommendations to customers, dramatically improving subscription order rate and reducing customer churn.
- Developed and executed long-term multi-quarter roadmap to re-architect the original, monolithic technical stack. This allowed us to support a number of new product lines with reduced costs and more stability. In particular, helped split our consumer and operations application stacks to support a clear contract both internally and with 3PLs or other ecommerce sites. Developed a strategy for master data, including business process, data governance, and systems support. Moved our data warehouse to BigQuery to support unified analytics across our complex business.
- Responsible for technology support for our IPO, including SOX compliance, internal controls, internal and external audit, PCI, pen and vulnerability testing, data security and PII, and overall SDLC.
- Wrote the Blue Apron Engineering Career Ladder (and rewrote it twice to adapt to our growing team). Developed a new promotions process from scratch to support self-

nomination, peer review, and a more inclusive promotions committee for decisions.

- Focused on building a diverse, inclusive team, increasing the number of underrepresented groups at all levels of our team, including our first female director and a new grad class made up of 70% underrepresented groups. Partnered with Pursuit (nee Coalition for Queens) to place, train, and hire one of Blue Apron's hourly warehouse associates onto our engineering team. Since August 2017, served as Executive Champion for Diversity and Inclusion across all of Blue Apron's teams, offices, and facilities.

Publications and talks:

- Forecasting Customer Behaviour in Constrained E-Commerce Platforms, 8th International Conference on Pattern Recognition Systems, Madrid, Spain, July 2017
- Fast, Fresh, Cheap: Engineering for the Real World, FirstMark's Code Driven Meetup, September 2016

Foursquare

New York, NY • November 2011 – May 2016

Senior Vice President, Engineering, November 2014 onwards
Vice President, Engineering, January 2013 - November 2014
Director, Search and Data Engineering, November 2011 - January 2013

Key accomplishments:

- Built the team and technology that powered Foursquare's search, recommendations, venue database, location awareness, contextual search, and smart notifications. Grew the team from 4 to 20 engineers; mentored and trained two managers.
- Personally coded a significant portion of the Foursquare Explore search ranking algorithm, infrastructure, and evaluation suite.
- Moved the team towards a metrics-driven search quality approach, then improved those metrics to beat key competitors (including Google, Bing, and Yelp) both in the US and internationally.
- Moved venue database curation from purely user-contributed to a semi-automated machine learned approach that dramatically reduced user effort while increasing throughput and quality, both in the US and in hundreds of countries internationally.
- During the (infamous) app split, led the Foursquare team in developing a new, contextually aware, taste-driven recommendations experience. Responsible for a multi-disciplinary team including iOS, Android, Web, backend, and data engineers. Managed a team of 40 engineers with multiple levels of management.
- Developed Foursquare's first engineering ladder and promotions process. Raised focus on hiring and promoting engineers from diverse backgrounds, for example helping to move us from 0% to 15% women on our team.
- Primary technology liaison for all strategic partnerships, including business development, contract negotiation, feasibility, and post-deal execution and customer success (e.g. Microsoft's $15m strategic investment in 2014)
- As SVP, responsible for a team of 100 engineers across all application engineering functions, infrastructure, SRE, and IT. As a member of the Foursquare leadership team, responsible for strategic decisions across the entire company, including product, technology, and partnerships. Key lead on partnership, fundraising, and M&A projects.

Publications and talks:

- Learning to Rank for Spatiotemporal Search, Web Search and Data Mining Conference (WSDM), Rome, Italy, February 2013.
- The Power of Place, with Akshay Patil and Ben Lee, 2012 Where 2.0 Conference

Google, Inc.

New York, NY • June 2004 - Present

Senior Staff Engineer and Engineering Manager

Built structured data engineering group from 5 to 35 engineers. One of the architects and key builders of Google's core representation for structured annotations and entities, the Knowledge Graph, now in use across Google's product offering. Responsible for both long-term strategic planning as well as direct team leadership, development, and recruiting.

Key accomplishments:

- Designed and implemented a system for annotating structured information on unstructured documents. Built team of 12+ engineers from scratch to develop and implement new extraction techniques and drive product integrations across Google. Extractors range from simple (dates, numbers, measurements) to complex (geographic information, named entities, sentiment analysis).
- Responsible for Google's overarching strategy for structured data, information extraction, and document understanding. Engineering lead for M&A in the space of semantics and structured data, including Metaweb Technologies in July 2010. Responsible for all areas of due diligence on the deal, post-deal strategic planning, and on-boarding the team of 25 employees.
- Led the development of a world-class query and document understanding framework that has answered more than a billion questions on google.com. Built industry-leading systems for extracting facts from documents, indexing structured data, and parsing queries. Grew and led 10-person team in rapid, iterative development cycle with nightly builds and evaluations and weekly customer-facing updates.
- Lead engineer and manager for team of 10 engineers building Google Squared, an internally-incubated, next-generation search product. Responsible for initial strategy and presentation to executives. Built team, developed "startup-like" atmosphere within Google, and launched in June 2009. Post-launch, continued to drive team on rapid, iterative development cycle, launching new features on a bi-weekly basis. Drove the integration of Squared technologies into google.com, leading to the re-launch of question answering and better organization of the search page.
- Helped instantiate the New York Google Goggles team based on a demo by the lead engineer. Built team from a single engineer to 9 in New York, working closely with a team distributed across four other offices to build technology and product concepts that were later integrated into Google Glass and the Android camera.
- A multitude of 20% projects, e.g. gene sequencing using spare compute cycles on Google's clusters, boot-from-disk version of Google Apps (pre-Chromebook), and an early, simple graph representation of the entities in Wikipedia.

Talks:

- Entities, Relationships, and Semantics: The State of Structured Search, with Daniel Tunkelang, Breck Baldwin, Evan Sandhaus, and Wlodek Zadrozny, at the 2011 O'Reilly Strata Conference.
- The 20% Solution, with Marc Donner and Zach Lloyd, about the "20% project" culture at Google and the impact it had on our work.
- The Structured Search Engine, an in-depth look at the collection of projects I worked on at Google, including question answering, Freebase, sentiment analysis, and Google Squared.

MIT Computer Science and Artificial Intelligence Laboratory

Cambridge, MA • July 2003 - May 2004

Research Assistant

Worked on the Haystack project, a Java- and XML-based information management client. Research included designing and implementing data model, algorithm, and user interface for learning patterns for semantic information extraction on the World Wide Web. System allowed users to highlight examples of data they wished to extract, forming a pattern which could be re-used to extract new information at a later date. Semantic labels were applied to these patterns, allowing them to be integrated into the larger framework of the Semantic Web.

Talks and Publications:

- Thresher: Automating the Unwrapping of Semantic Content from the World Wide Web, WWW 2005, May 10-14, 2005, Chiba, Japan.
- Wrapper Induction for End-User Semantic Content Development (PPT) At the Interaction and Design in the Semantic Web Workshop, 13th annual World Wide Web Conference, New York, NY.

Advent, Inc.

New York, NY • August 2001 - May 2004

Senior Developer / Team Lead

Managed design, development, and implementation of "DAX" (Data Acquisition and Transformation), a system for consolidation and aggregation of disparate financial data using J2EE components. Design included distributed, multi-threaded, agent-based architecture with centralized administration and auditing features. Standardized internal business object representations to allow handling of a wide range of inputs and outputs with little or no new code. Included work with Enterprise Java Beans (EJBs), JSP, JMS, XML, BEA WebLogic, ATG Dynamo, and Oracle.

Note: Employed part time July 2003 - May 2004 while working towards Masters of Engineering at MIT.

Storefront Media, Inc.

Cambridge, MA • Sept. 1999 - January 2001

Co-founder and CFO

Co-founded e-commerce solutions startup while in school. Lead development of "Natural Fit" software to match a given shopper's measurements with the correct clothing size. Also aided in development of collaborative filtering recommendation application. Development work included C++, JavaScript, TCL, and PL/SQL with Oracle. Managed relations with main client, including technical and product marketing meetings. Presented technology to various potential investors. Co-wrote business plan (technical and financial sections) as well as developing sections of main technical documents.

Advising and Investing

Hudson River Angels

New York, NY • July 2008 - Present

Principal

Deal sourcing, diligence, and advising as part of a partnership of 5 current and former Googlers. Seed-stage investments include:

- Hyperpublic – sold to Groupon.
- SetJam – sold to Motorola.
- Lucid Software – continuing, raised Series B in 2016.

Noom

New York, NY • June 2015 - Present

Advisor – Engineering leadership, organizational design, recruiting, technology platforms.

Upsider

New York, NY • March 2018 - Present

Advisor – Machine learning, information retrieval, distributed computing, engineering recruiting, technology platforms.

Wildcard

New York, NY • July 2014 - October 2016

Advisor – Search, machine learning, engineering leadership, organizational design, recruiting, technology platforms.

Education

Massachusetts Institute of Technology Cambridge, MA • July 2003 - June 2004

Master of Engineering Degree in Computer Science, June 2004. Cumulative GPA: 4.8/5.0
Thesis: Tree Pattern Inference and Matching for Wrapper Induction on the World Wide Web
Advisor: David Karger

Massachusetts Institute of Technology Cambridge, MA • August 1997 - June 2001

Bachelor of Science degree in Computer Science, June 2001. Cumulative GPA: 4.5 / 5.0

Proficiencies

- Quickly adaptable to a wide array of programming languages, paradigms, and libraries. Specific experience and fluency (in descending order of expertise): Python (including SciPy and nltk), Scala, Javascript, C++, STL, Dart/Flutter, SQL, CSS, Ruby, Java/J2EE/GWT, Perl, Bash, Swift, R, Matlab, and many more.
- Deep experience across a wide array of technologies, including highly-scalable, distributed systems, multi-tier indexing and serving frameworks, web applications, and databases, as well as specific systems such as MapReduce/Hadoop, and BigTable.
- Expert, practical knowledge of search ranking, information retrieval, machine learning, information extraction, natural language processing, and sentiment analysis.
- Able to flex between executive-level and front-line management and team building in high-impact, fast-moving, distributed environments.
    - End-to-end recruiting and closing skills from new grad up to C-level.
    - Career mentoring and growth for all stages of engineering development, from apprentice through professional.
    - Experience on both sides of remote offices, including communication, project selection, leadership development, executive exposure, and office culture.
    - Proven track record of delivering large, complex projects on schedule.
- Skilled presenter and speaker, both internally and externally. Long track record of strategy presentations to executives, partners, and investors. External talks on a wide array of topics, from core engineering to engineering management principles to D&I.

Miscellaneous

- Mentor for the Fresh Air Fund's job shadowing program, 2014-2017.
- Advisory Board, Pursuit (nee Coalition for Queens), 2016-present.
- William A. Martin Memorial Thesis Award for Outstanding Computer Science Thesis, 2004.
- Inventor or co-inventor on more than 25 patent applications, including 8 issued.
- Fully built, installed, and maintained own Linux distribution and supporting software from source code.
- Winner of 2003 MIT "Real Complex Planes" competition (category: longest duration).
- Eagle Scout.
- Father of three, passable guitarist, occasional karaokier, and taco enthusiast.