Sitaram Iyer

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Distinguished Software Engineer

Creative, motivated engineer and leader with a passion to improve communities and the world through impactful digital innovation. Skilled at identifying new approaches and framing that overcome roadblocks especially relating to social impact and justice. Extensive experience building products and systems that prioritize users' deeper needs.

KEY SKILLS

Social Impact User Needs | Managing Small & Fast Teams | Cross-org Collaboration | Search Feature Development | Open Data Ecosystems | Web-scale Distributed Systems | Knowledge Graph | Search Engine Optimization

PROFESSIONAL EXPERIENCE

Google - Social Impact Search

2014 - 2023

Distinguished Engineer (L9)

Pursued different missions to help underprivileged and marginalized groups through job search, education, financial wellness, and social justice. Navigated stakeholders, policy and legal challenges, and external partners, creating space for engineers and product managers (2 to 5 directs, teams of 5 to 15) to build effective and compassionate products.

Major Projects:

- **Big Moments (2020 - 2023):** Led a team that created Search features to provide deeper context for important news stories on Google shown on queries about current events such as the Ukraine war and the Oscars and other sensitive and/or popular moments such as natural disasters, protests, celebrity deaths, mass shootings, coups, trials, and media or sporting events. We show "lives affected" from Reuters for the scale of a war or mass shooting, live images from Getty for an on-the-ground view, in-depth news explainers for moments like the Roe v Wade overturn and complex court cases, "How to help" with links to donate to the Ukraine refugee crisis, human voices from social media for context on incidents like the Will Smith slap, podcasts to provide more color, award nominees and winners for timely updates of an event such as the Oscars. Press coverage.
- **Financial Wellness (2020):** Advised teams to help with unemployment benefits especially for job seekers during the pandemic. Created features that improved financial literacy. Google blog post from Oct 2021.
- **College Search (2017 - 2019):** Led a team to launch Search features for college name and list queries, to help especially underprivileged students make informed college choices and find their best fit by 1) avoiding predatory schools, 2) recognizing lower-cost options, 3) understanding ROI, 4) choosing programs aligned with their career goals, 5) seeing student life and if they will fit in, and 6) getting notified about financial aid. Google blog posts from June 2018 and August 2019.
- **Job Search (2015 - 2017):** Led a team to launch a job search feature for queries like "accountant jobs near me", by collaborating with major job boards and aggregators to enable the user to search for and filter jobs to identify relevant ones, understand estimated salaries and benefits, look for remote work, and get notified of new jobs. Google blog posts from June 2017 and Nov 2017.

Google - Search Infrastructure

2003 - 2014

Member of Technical Staff (L4) to Distinguished Engineer (L9)

Led search infrastructure projects such as web and knowledge graph indexing, building large, fast, and complex systems directly in data centers before the advent of Cloud technologies.

Major Projects:

- **Foundation (2014 - 2015):** Worked on unifying all of Google's Search infrastructure including private/public, structured/unstructured, crawl/indexing/serving systems into a single "database of everything" and shared business logic with modular APIs and microservices.
- **Livegraph (2012 - 2013):** Built the incremental indexer for the Knowledge Graph, with low-latency reconciliation and composition. This powers Knowledge Panels and many other Search features.
- **Alexandria (aka Caffeine) (2007 - 2013):** Led the team to build the incremental indexer for Web Search that scaled to 1T web pages, averaged 1 min latency, and reduced staleness by 50%. It was built on a 250 PB Percolator based transactional data store running on 15,000+ machines, and had innovative techniques to handle diverse content types, redirects, duplicates, hyperlinks, pagerank, webmaster errors, and hacked sites. Google blog post from June 2010.
- **Indexing pipeline (2005 - 2010):** Built a batch indexing pipeline that scaled to 200B web pages with 36-hour latency, implementing a virtual segmented 10 PB repository that was needed to ingest a continuous crawl.
- **Index scaling (2003 - 2005):** Launched 8B web page index over 3 weeks on the eve of Microsoft's 5B index.

Microsoft Research, Cambridge — Summer 2001

Eng Intern

- **Publication:** Squirrel: A decentralized peer-to-peer web cache. Sitaram Iyer, Ant Rowstron, Peter Druschel. Published in the Symposium on the Principles of Distributed Computing (PODC), July 2002, Monterey, CA.

EDUCATION

RIce University, Houston, TX — 2001 - 2003 (graduated in 2005)

Ph.D. in Computer Science

- **Dissertation:** Application-assisted physical memory management
- **Related publication:** Practical, transparent operating system support for superpages. Juan Navarro, Sitaram Iyer, Peter Druschel, Alan Cox. Published in the Symposium on Operating Systems Design and Implementation (OSDI), Dec 2002, Boston, MA.

RIce University, Houston, TX — 1998 - 2001

M.S. in Computer Science

- **Thesis:** Anticipatory disk scheduling
- **Publication:** Anticipatory scheduling: A disk scheduling framework to overcome deceptive idleness in synchronous I/O. Sitaram Iyer, Peter Druschel. Published in the Symposium on Operating Systems Principles (SOSP), Sep 2001, Chateau Lake Louise, Banff, Canada.

Indian Institute of Technology, Bombay — 1994 - 1998

B.Tech. in Computer Science

- **Thesis:** Xority: A measure of separability of training sets for neural network size estimation.
- **Publication:** Xority: A measure of separability of training sets to estimate hidden layer size in neural networks. Sitaram Iyer, Pushpak Bhattacharyya. Published in the Intl. Conference of Knowledge Based Computer Systems (KBCS), Dec 1998, Bombay, India.