Aditya Shah

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SUMMARY

Senior Software Engineer with over eight years of experience at Google Search, specializing in Applied Machine Learning, Natural Language Processing, and large-scale distributed systems. Proven track record of leading high-impact research and engineering initiatives that have shipped to production, improved search ranking for **b**illions of users, and resulted in a patent application. Seeking to leverage deep technical expertise and leadership skills to drive the development of innovative products.

SKILLS

C++, Python, Machine Learning, Natural Language Processing, Information Retrieval, Planet Scale Distributed Computing

EXPERIENCE

Senior Software Engineer, Google Search — Nov 2021 – *Current*

- Researching techniques to use the Gemini model to extract query contextual snippets from non text sources to augment the shown search results.
- Designed and implemented a scalable experimentation framework for evaluating LLM ranked search results, enabling rapid iteration and product improvements across Google Search. It has been used to run 1000+ evals to improve Google Search.
- Developed a novel solution that mitigated the impact of pages that saturate search signals, leading to an unfair boost. Improved the top line quality metric for the affected slice by 11%. This project resulted in a patent application.
- Led a team to investigate and develop methods for improving the ranking of uniquely valuable, non-search engine aware results. This research led to improved result diversity for queries with no single right answer and user-generated content.
- Architected a novel system to protect vulnerable users by pre-computing a corpus of helpful documents for personal crisis queries. This involved designing a specialized retrieval and ranking functions to serve the most helpful results online.
- Mentored junior engineers and peers on the team in best practices in ranking functions and large-scale system design, contributing to their technical growth and project success.

Software Engineer, Google Search — Mar 2017 – Nov 2021

- Researched and launched a new ranking signal that extracted relevant locations from documents using both page text and query context. Improved the location accuracy by 10%-30% depending on the locale.
- Designed and launched a novel system for multilingual classifier training that significantly reduced dependency on labeled data in the target language. This system, which enabled auto-internationalization to 24 languages from English training data, was adopted by multiple teams across Google, demonstrating broad impact and technical leadership.

Software Engineering Intern, Google LLC — May 2016 – Sep 2016

- Created a proxy client to enable fast cross cluster communication using RDMA in a high performance distributed in-memory file system reducing CPU usage in the source cluster.

Research Intern, Siemens Research, Bangalore, India — Jan 2015 – Jun 2015

- Modeled Energy-Performance characteristics of GPGPU kernels to compute the pareto-optimal trade-off between energy efficiency and maximum performance.

PATENTS

Detecting Signal Exploitation From Consistent Ranking Patterns, Google LLC — Jul 2024

PUBLICATIONS

A. Shah, A. Challa, S. Danda, A. Mathur, S. Saha “A Granger-Causal Perspective on Gradient Descent with Application to Pruning”

EDUCATION

University of Michigan, Ann Arbor, Michigan, USA

- Master of Science in Computer Science and Engineering — Sep 2015 – Dec 2016

Birla Institute of Technology and Science, Pilani, Goa, India

- Bachelor of Engineering (Honors) in Computer Science — Aug 2011 – May 2015