Navdeep Singh

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EDUCATION

UNIVERSITY OF ARIZONA
MS in Computer Science
May 2020 | Tucson, AZ

UNIVERSITY OF ARIZONA
Minor
Eller College of Management
Information security[1]
Risk Management[2]
Percentile: 99[1] and 100[2]

STANFORD UNIVERSITY
Summer Coursework
Machine Learning
Percentile: 97

SUPERPOWERS

MANAGEMENT
• Exceptional Communication
• Deep Technical Background
• Negotiation
• Organization
• Thrive in Ambiguity
• Work at Scale
• System Design
• Strong Leadership
• Influence without Authority
• Backbone to disagree and commit
• Strategic Thinking
• Team Building and Mentoring

PROGRAMMING
Over 10000 lines:
Javascript • SwiftUI • Java • HTML • GraphQL • SQL
Over 5000 lines:
C • C++ • CSS • Swift • Lodash •Python
Familiar:
Unix • LaTeX • HDFS • Flutter
Patterns:
React • Redux • Spring Boot • Horizonte • jQuery • Architecture on AWS • Web Services • MapReduce • Jenkins • Git

LINKS

Website:// **navsing.com**
Github:// **navsing**
Twitter:// **navsing**
LinkedIn:// **navsing**

EXPERIENCE

AMAZON
Technical Program Manager - Consumer Engagement
Oct 2019 - Present | Seattle
- Owns overall operations and preparations for large-scale events such as Prime Day and Black Friday for Amazon globally, enabling 200+ services to render the customer experience on the Amazon detail page.
- Represents **Amazon's detail page** and **buying experience** in the office with management, partners and senior Tech leadership.
- Driving and scaling operational efficiency programs across Amazon to enhance the developer experience at Amazon and help systems run faster while saving the company millions each year. More on Page 2.

Software Engineer
May 2018 - Oct 2019 | NYC
React, Redux, JavaScript, Java, MySQL, Scripting, AWS
- Full Stack Software Engineer.
- Designed and developed **Audible's** CMS and publishing tools.
- Mentored two interns. Both received a full-time offer from Amazon.

NOAO | Chief Programmer
May 2017 - May 2018 | Tucson, AZ
- **Architect:** Designed and developed a software infrastructure to process alerts generated by LSST (largest telescope in the world being built in Chile).
- **Management:** Interface between Astronomers, UX and Engineers.

DATA LAB - UA | Researcher
Aug 2016 - May 2018 | Tucson, AZ
- **Ownership:** Individual Research focusing on Distributing Computing and Computer Networks.
- **Productizing and Implementation:** Integrated novel networks (NDN) with Hadoop from conceptualization to launch.
- **Data Analysis:** Analyzed debug level Hadoop traces (log files - Gigabytes in size)

INFOSYS LTD. | Software Engineer
June 2014 - July 2016 | India
C#, ASP.NET, MVC, Entity Framework, SQL, Agile
- Worked both within Infosys and its corporate clients.
- Worked as a part of the development team to code, test, optimize and ship.

PUBLICATIONS

[1] T. Matheson and N. Singh. Machine-learning-based brokers for real-time classification of the lsst alert stream. *The Astrophysical Journal Supplement Series*, 2018.

[2] G. Narayan and N. Singh. The antares astronomical time-domain event broker. *The Astronomical Journal*, 2021.

[3] N. Singh and R. Dhiman. A survey on data aggregation and clustering schemes in underwater sensor networks. *Science Engineering Research Support Society*, 2014.

[4] N. Singh and R. Dhiman. Fuzzy logic based clustering algorithm for network optimization. *International Journal of Systems, Control and Communications*, 2015.

TPM | AMAZON WORK EXPERIENCE IN DETAIL

SCALE OF IMPACT AND INFLUENCE | High Velocity Events
Amazon Detail Page, Amazon API and Amazon Analytics

- Owns readiness for top 3 most extensive Tier-1 services in Amazon that enables 155+ services to render the customer experience on Amazon.com
- Established a team of Sr. SDEs, Principal Engineers and SDMs to drive overall readiness plan for large-scale events worldwide such as Prime Day, Diwali, Black Friday, Christmas, Singles Day, Gaming Console launch events and more.
- Helps over 260 teams (2000 SDEs and SDMs) to scale, automate resilience activities (Chaos, Stress, Crush and Endurance tests), resolve policy risks, identify max conns, schedule deployments, generate on-call rosters, and represent them in consumer-wide meetings (with CEO, Consumer)
- Creates policies, calendars, and exception process with the release team, product management, business and leadership, and scales them to thousands of engineers through ticket campaigns, meetings and brown bag sessions. Independently manage over 150+ feature exception requests per event and provided regular updates to Consumer leadership.
- Out of 1512 services, Amazon Detail Page, Amazon API and Amazon Analytics have the highest possible resilience score. Even with unpredictable traffic changes related to COVID and last-minute schedule shifts, Prime Day, Cyber Monday and other events around the globe were the quietest events in the history of these teams.
- Leads all large-scale events tech preparation for entire Amazon, saving over 200+ hours of software engineering work for each team.

PROCESS IMPROVEMENT | Onboarding and Deprecations
Amazon A/B Tests Platform and Developer Experience

- Amazon's A/B tests platform is one of the largest systems at Amazon and has over 59,000 internal users. Given the complexity of the federated system, it takes a long time to understand the system's state, which makes the team's on-call very challenging.
- Proposed a series of operational metrics to give the team more visibility into the system. I noticed a gap between measurable and unmeasurable metrics and looped in principal engineers for a fix.
- Setting up automatic monitoring on the system enabled the team's on-calls to notify when the given metric is outside the desired operating range. The team has observed a decrease in time-to-resolution, thus resolving customers' issues faster and increasing the throughput of on-call rotation without increasing resourcing that would come from project work.
- The team took over 21 legacy systems/services. Legacy systems pose an availability risk on Amazon and are a significant source of high severity tickets to the team's on-calls. I devised a program strategy with the leadership, created a tracker with delivery dates, and scheduled daily stand up with multiple stakeholders, driving the project to completion.
- Currently, all legacy systems are deprecated and are replaced with a new service that has reliable result delivery, reduced operational load, and lower IMR cost.
- With Amazon's growth, operational load per engineer has increased by 33 percent YoY. Conducted a study Amazon-wide to see how much time is lost on the operational load that could have been prevented through better information discovery. Partnered with Product and UX, proposed, and currently scoping a project that streamlines information discovery to tools that simplify implementing and maintaining services by generating infrastructure, service dashboards and code synced documentation.

ADVISES AND COMMUNICATION | Campaigns and Tools
Amazon Triggers

- Vigilantly reached out to partner teams to ensure they can handle increasing amazon triggers on the retail platform. The growth rate increased drastically from 250B/day to 750B/day in just one month, 6 times more than the service can handle. In addition to brownout risk, there is a risk of significant customer impact.
- Escalated to the senior leadership, identified large services and proposed to reduce daily triggers through ticket campaigns. Created and owned the campaign, and worked with 1000s of users to guide them to implement downsampling and/or turn off triggers.
- Reduced the trigger counts from 750 billion to 250 billion in just two weeks.
- Earlier, this rise is noticed every peak and manual campaigns were executed to reduce Triggers. This is a high risk project and requires a lot of manual work in identifying and communicating with partners.
- Proposed and built a solution to reduce manual campaign effort. A tool that identifies stale systems emitting the highest triggers and requests them to either turn off or implement downsampling. So far, the tool has created over 50k tickets, it is currently in production and raise an average of 2000 tickets every week, saving 8 hours of software engineering work every week, and over 1 million dollars in IMR savings per year.

SELF SUMMARY

While my passion is computer science, I love to be outdoors, I play soccer every weekend, tennis everyday and hike when I can.