

harshytgoel

web infrastructure engineer

about

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programming

PHP
Hack/PHP
C++
JS
CSS
HTML5

languages

english bilingual
hindi bilingual
german limited
proficiency

summary

An experienced learner and programmer. My approach to tackling new challenges and problems in general is to immerse myself in them, figure out the variables involved and iteratively build to a solution. Enjoy working with server infrastructure and API design along with frequent projects in frontend and backend land.

experience

- 2015–2017

Facebook Inc.

Menlo Park, California

Software Engineer

Built out the web infrastructure for several Facebook Messenger products. Some Major projects include:

 - Building a messenger thread/profile deep-linking framework for the m.me/username scheme with a suitable fallback mechanism on both Desktop and Mobile for messenger. Used extensively by businesses for B2C communication with over 500 Million hits/Day.
 - Implementing cross platform C++ services which create/encode unique Messenger Codes (Messenger's QR code equivalent) for Users/Businesses and conversely scan/identify/decode the same.
 - Also created relevant APIs and endpoints for the Mobile Clients along with integrating the server caching/storage infrastructure.
 - Revamped the Facebook Messages Inbox to resemble the Messenger.com interface.
 - Implemented a thorough system to check consistency of Messenger User Contacts across the stack that allows devs to track unexplained losses/additions of Contacts across the various backend layers to the client. Built a robust backbone for future alerting and integrity systems to be built on top.
 - Implemented comprehensive funnel logging for Messenger Search which allowed quantifiable search performance tracking. This data allowed Messenger to create goal against relevant metrics and significantly improve search performance leading to a decrease in failed searches by 3%.
 - Extensive work with creating/modifying/maintaining complex GraphQL + EntSchema(Facebook's internal object relationship mapping layer) architectures and provisioning a plethora of endpoints for clients.

2014–2014

Facebook Inc.

Menlo Park, California

Software Engineering Intern (3 mos)

Worked on the Ads Infrastructure team. Primarily on the caching system which loads all Ad units from local databases into Memcache.

- My project involved implementing a major rewrite of the task management system to remove dependencies on Zookeeper abstractions and configs and allow Tupperware to handle jobs statically. This allowed for major improvements in efficiency and concurrency.
- The subsequent parallelization of Ad unit loading tasks led to an average of 25% reduction of Total Time taken for a job across all Data Centers.
- Switching the scheduling mechanism led to the reduction of On Run Delays by approx. 60%

- 2013–2013 **Universität Bremen** Bremen, Germany
Research Assistant (3 mos)
 Worked on Model-based optimal multi-variable control and optimum controller parameterization for air systems of passenger car diesel engines.
- Implemented the Mathematical Model of the Air system consisting of a system of ODE's in C++ by using suitable techniques for Discretization , Interpolation and Simulation.
 - Calculated an Optimal Control for the system using TransWORHP (In-House Toolbox) and achieved lower exhaust emissions without any significant drops in power.
- 2012–2012 **Indian School of Business** Hyderabad, India
Research Assistant (3 mos)
 Worked on an Operations Research problem focused on optimizing cab placements throughout a city for maximum revenue and minimum churn.
- Developed a mathematical model to maximize the revenue using linear and non-linear objective functions by relocation of taxis based on predicted customer demand.
 - Achieved an increase in revenue up to 16% by the use of Queuing Theory (M/M/s/N models) to model loss of customers.

projects

- 2016–2017 **Riffshop Academy** San Francisco, California
Co-Founder
 An online portal focused on teaching musicians heavy metal song-writing.
- Used a combination of growth hacking strategies and community building to amass a loyal combined audience of 50k accross various platforms.
 - Built browser based scripts to automate Facebook growth and Reddit visibility
 - Studied common traits of video virality and implemented them effectively resulting in multiple videos with millions of views. This resulted in
 - Advertising deals with known brands such as Dollar Shave Club, CB3 Audio, IGN and others.
 - A successful 1-week merchandising trial run which resulted in a profit of nearly 3000\$
 - I learnt to analyze an Audience, get a feel for their emotional hooks and create relatable content while growing the brand with the reputation as a legitimate musical learning and entertainment resource.

education

- 2013–2015 **Master** of Science Indian Institute of Technology, Kharagpur
 Specialization in Mathematics and Computing (Cryptography)
- 2010–2013 **Bachelor** of Science Indian Institute of Technology, Kharagpur
 Specialization in Mathematics and Computing