

# Sumit Singh

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EDUCATION      Highest Degree: Masters in Computer Science, IIT Kanpur.[9.0 GPA out of 10.0]

RECENT WORK      *Software Engineer II (Server) - Directi*

Time: Feb 2015 onwards.

Server: Call manager server for call-based applications - Ringo, Tring.

- improving existing code design (a lot of re-write).
- increasing code coverage - unit and functional tests.
- supports multiple call-flows (e.g. PSTN call forwarding and VoIP calls).
- supports different payment strategies for different call.
- managing multi-threading and persistence.
- easy to use API and making debugging easier (not much done here yet).

*Software Engineer II (Android) - Directi*

Time: Feb 2014 - Feb 2015.

Product: Tring - VoIP client.

- worked in Java, JNI, C, XML with emphasis on good code design.
- emphasis on writing re-usable modules across clients.
- worked in a team of 2 for initial 10 months.
- a significant amount of time was invested to ensure quality, specifically echo mitigation.
- experimented with a lot of voice/media stacks with some tweaks of our own.
- experimented with continuous build system and analytics.
- wrote functional tests for an earlier version of the app (no quality test).

*Software Engineer (Android) - Directi*

Time: Sep 2012 - Jan 2014.

Product: talk.to - rich text IM client.

- Tools: Ant, Monitor (Android Performance tool), Java profiler (YJP).
- Test: Unit testing(JUnit) and functional testing (android specific).
- Some great insights : e.g. reasons for low user onboarding(successful sign-up) rate, why pivoting the product (did twice when I was there).

*Training project at Directi*

Time: Jul 12 - Sep 12. Product: similar to twitter - web client and server.

- Languages: Java, Javascript.
- Build Tool: Maven.
- Database: PostgreSQL, Redis.
- Other: Java Spring MVC framework, Apache http server.

SELECTED  
RESEARCH WORK

Pawan Aurora, Sumit Singh and Shashank K Mehta, "*Partial Degree Bounded Edge Packing Problem for Graphs and k-Uniform Hypergraphs*", Journal of Combinatorial Optimization, Vol 29, No. 4, April 2015.

Sumit Singh and Shashank K Mehta, "*An Improved Approximation ratio for Prize Collecting Steiner Forest Problem in Node Weighted Planar Graphs*", part of M.Tech thesis.

Sumit Singh, "*A Local Approach for Identifying Clusters in Networks.*", arxiv:1203.4685, 2012.

Sumit Singh and Ayushi Garg, "*Towards The Adaptive Questionnaire Generation Using Soft Computing*", Proceedings of NaBIC, pp 806-811, 2009.

MASTER'S THESIS	I worked with Prof. Shashank K Mehta to improve approximation algorithms for certain graph based problems. We were able to improve the state of the art in two of the three problems.(at the time of thesis defense).
ACADEMIC POSITIONS OF RESPONSIBILITY	Teaching Assistant for Algorithms II (Jan 12 - May 12). Teaching Assistant for Randomized Algorithms (July 11 - Dec 11). Teaching Assistant for C Programming Lab (July 10 - May 11).
INTEREST & HOBBIES	playing snooker and basketball. have settled for listening music as people struggled to realize my vocal talents. trekking - discovered it recently and its fun. Thanks to the Himalayas.