

# Sumit Singh

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EDUCATION      M.Tech (Computer Science): IIT Kanpur.[9.0 GPA out of 10.0]  
B.E. (Computer Science): BIT Mesra.[7.53 GPA out of 10.0]

RECENT WORK      *Senior Platform Engineer - Directi*  
Server: Call manager server for call-based applications - www.ringo.co  
Time: Feb 2015 onwards.

- ensure better code design and simplicity.
- designing and specing out public APIs to be used by clients.
- increasing code coverage - unit and functional tests.
- prefer async APIs while keeping close to single thread model.
- implemented almost dynamic multiple call-flows (PSTN and VoIP based).
- making debugging easier.
- focused on analytics to measure system performance.
- helping move towards platform model to support third parties.

*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.
- 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.
- worked in a team of 2 for initial 10 months.
- Ringo (www.ringo.co) android client uses the main voice library from this project.

*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	<p>Pawan Aurora, Sumit Singh and Shashank K Mehta, "<i>Partial Degree Bounded Edge Packing Problem for Graphs and <math>k</math>-Uniform Hypergraphs</i>", Journal of Combinatorial Optimization, Vol 29, No. 4, April 2015.</p> <p>Sumit Singh and Shashank K Mehta, "<i>An Improved Approximation ratio for Prize Collecting Steiner Forest Problem in Node Weighted Planar Graphs</i>", part of M.Tech thesis.</p> <p>Sumit Singh, "<i>A Local Approach for Identifying Clusters in Networks.</i>", arxiv:1203.4685, 2012.</p> <p>Sumit Singh and Ayushi Garg, "<i>Towards The Adaptive Questionnaire Generation Using Soft Computing</i>", Proceedings of NaBIC, pp 806-811, 2009.</p>
MASTER'S THESIS	<p>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).</p>
ACADEMIC POSITIONS OF RESPONSIBILITY	<p>Teaching Assistant for Algorithms II (Jan 12 - May 12).</p> <p>Teaching Assistant for Randomized Algorithms (July 11 - Dec 11).</p> <p>Teaching Assistant for C Programming Lab (July 10 - May 11).</p>
INTEREST & HOBBIES	<p>playing snooker and basketball.</p> <p>have settled for listening music as people struggled to realize my vocal talents.</p> <p>trekking - discovered it recently and its fun. Thanks to the Himalayas.</p>