

# Apurv MEHRA

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## EDUCATION

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- AUGUST 2014 Master of Technology in COMPUTER SCIENCE AND ENGINEERING  
Dual Degree Program, [IIIT - Delhi](#), New Delhi  
Masters Thesis: "Interoperability model for health information systems and associated benefits challenges and approach"  
Advisor: Dr. Amarjeet SINGH  
CGPA: **9.30/10.0**
- MAY 2013 Bachelor of Technology in COMPUTER SCIENCE AND ENGINEERING  
*Finance Specialization*, [IIIT - Delhi](#), New Delhi  
B.Tech Project: "Improving healthcare efficiency using IT"  
Advisor: Amarjeet SINGH  
CGPA: **8.16/10.0**
- MAY 2008 [Burnpur Riverside School](#), CBSE | Final Grade: **86.5/100**
- MAY 2006 [St. Vincent's High School](#), ICSE | Final Grade: **92.0/100**

## WORK EXPERIENCE

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- SEPTEMBER 2014 | Research Associate, Systems Group, IIIT - DELHI, New Delhi, India  
*Current* Advisor: [Dr. Pushpendra Singh](#)  
Design and Development of a Mobile Device Centric Environment for Healthcare Delivery  
Designed a pub-sub based middleware to support information exchange in public health. This middleware will interface with Android mobile phones to collect information from health workers. Currently implementing the system using *RabbitMQ* as pub-sub and *Spring* for web service. [| link to source code](#)
- MAY-JULY 2011 | Summer Intern, [HISP - INDIA](#), New Delhi, India  
*Developing BIRT Reports for OpenMRS*  
Understood the e-Health Infrastructure set up of Himachal Pradesh state in India. It primarily involved DHIS2 at centre for collection, management and analysis of data.  
OpenMRS as health information system deployed across the state hospitals and several mobile health workers across the state. Also developed various *Business Intelligence Reporting Tool* Reports for analysis of hospital data.
- MAY-JULY 2010 | Summer Intern, [MUC GROUP](#), IIIT - Delhi, New Delhi, India  
*Porting SANA to Symbian Phones For use in India*  
[SANA](#) (earlier MOCA) is a MIT based open-source end-to-end telemedicine application in Android that facilitates the capture of medical data and physiological signals through a fully programmable workflow interface. In 2011, the symbian phones were widely used in India so we decided to make a symbian client for SANA. We used [JavaRosa](#) and extended it to interface with the SANA's middle layer MDS, keeping the backend same. MDS transmitted messages to an OpenMRS hospital information system, where the information could be viewed by a healthcare provider. [| link to source code](#)

## PUBLICATIONS AND DEMOS

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1. Rushil Khurana, Sanchit Sharma, **Apurv Mehra**, Daksha Yadav, Vinayak Naik, and Amarjeet Singh. Jiah: Healthcare goes mobile. Proceedings of **M4D 2012** 28-29 February 2012 New Delhi, India, 28(29):102, 2012.
2. Amarjeet Singh, **Apurv Mehra**, Sundeep Sahay. "Integrated Health Information Systems in Practice." Demo in **Nethealth** Workshop in **COMSNETS 2014** 7-10 January 2014 Bangalore, India.
3. **Apurv Mehra**, Amarjeet Singh, Sundeep Sahay. "Integrating ICT Ecosystem For State Wide View Of Health Services: A Case Study For The State Of Himachal Pradesh India", Under submission in Special Issue of the Journal of Information Technologies for Development.
4. R Wadhwa, **A Mehra**, P Singh, M Singh. "A Pub/Sub based architecture to support public health-care data exchange." Under review in **COMSNETS 2015** Workshop: Networked Healthcare Technology (**NetHealth**)
5. Apurv Mehra, Amarjeet Singh, Sundeep Sahay. "Analysing Healthcare Data Collected From Interoperable Health Information Systems", Under submission in **IFIP WG 9.4: Social Implications of Computers in Developing Countries**, 2015.

## TEACHING EXPERIENCE

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AUGUST 2013 MAY 2014	Teaching Assistant, IIIT - DELHI, New Delhi, India <i>System Management (CSE131, Fall 2013)</i> <i>Analysis and Design of Algorithms (CSE222, Winter 2014)</i>
Batch Size: 120	As a teaching assistant took tutorials on specific topics, evaluated lab work, homework assignments and examinations.
MAY-JULY 2013 MAY-JULY 2012 Batch Size: 5	Mentor <b>MUC GROUP</b> , IIIT - Delhi <i>Training Students in module development for OpenMRS</i> Initially documentation for learning module development in OpenMRS was not extensive so I trained sophomore students in developing modules for OpenMRS. This required teaching various languages and technologies such as HTML/CSS, Javascript, Spring, Hibernate and MySQL. Explained principal behind MVC framework and helped setup and debug Apache servers and OpenMRS systems. In due course of training created a self learn <b>OpenMRS training</b> website for future students.

## SELECTED PROJECTS

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JUNE'13 - AUG'14 <i>Technologies</i>	Interoperability model for health information systems and associated benefits challenges and approach, Masters Project <i>Spring MVC, Hibernate, Liquibase, Javascript, Java , Django, Excel</i> <b>HISP - INDIA</b> had developed a SDMX-HD based module to provide interoperability between two open source health information systems <b>OpenMRS</b> and <b>DHIS2</b> . Objectives included finding problems in current implementation and deploying a working solution across the state. Post deployment I collected hospital data along with weather and pollution data of the same period. Used statistical tools to show correlation between various hospital indicators and external factors. <a href="#">  link to source code</a>
AUG'12 - MAY'13 <i>Technologies</i>	Improving Healthcare Efficiency using IT, B.Tech Project <i>Android, Python</i> Worked with <b>AHREF</b> (Apollo Hospitals Educational and Research Foundation) to study and suggest improvement to the newly deployed hospital information system. We prepared a report based on a three month long empirical study in the hospital. Based on the study we suggested collection and visualization of sensor data on phone. For this we extended <b>ODK Sensors</b> to collect data from sensors on phone over WiFi. Since many sensors do not push data over WiFi directly we interfaced them with Rpi boards which in turn pushed data on WiFi. <a href="#">  link to project resources</a>

JAN-APRIL 2014 Technologies	<p>pho-CO-play, <i>Windows Phone based game controller</i>  <i>Windows Phone SDK, C#</i></p> <p>Created a windows phone gesture enabled application to remotely control PC over WiFi. The primary objective of the app was to create customized profiles for playing games or controlling any application on the PC. We included simple 2D gestures to emulate key press.  <a href="#">  link to source code</a></p>
JAN-APRIL 2014 Techonologies	<p>Financial, <i>Projects in Domain of Finance</i>  <i>Google App Engine, Python (Django, Beautiful Soup), Excel, Tableau, Highcharts</i></p> <p>Worked on numerous projects in finance domain and earn specialization in Finance during undergrad program.</p> <ul style="list-style-type: none"> <li>• <b>Valuing Companies and identifying Multi bagger Stocks:</b> Collected financial data ( income statement, balance sheet and cash flow) of all companies and stocks from <a href="#">Yahoo Finance</a> by building a generic web parser in python. Calculated financial ratios ( Liquidity, Debt, Profitability, Cash Flow, Investment Valuation ) and displayed content to users to comparing companies for investment decisions. In the second phase used Peter Lynch strategy to quantitatively filter stocks and later did qualitative analysis to come up with 3 multi bagger stocks. (NASDAQ, BSE)</li> <li>• <b>Case Study on Banking Sector in India:</b> Detailed study on how banking sector functions in India. Covered topics of regulation, risk in business, research, planning, credit rating agencies and accounting policies of bank.</li> <li>• <b>Valuing Real Options in Metro Railway Transit System:</b> Study and analyze the real options and investment decisions undertaken by Delhi Metro Project and check the possibility of applying the same to similar projects in other metro cities like Bangalore, Kolkata etc. taking into account the delay and cost escalation that has occurred in these projects.</li> </ul> <p><a href="#">  link to resources</a></p>
JAN-JULY 2012 Technologies	<p><b>CODECC</b>, <i>Cloud Based Course Management System</i>  <i>Google App Engine, Python, Web Technologies</i></p> <p>A cloud based course management system built on Google App Engine. It handles all the basic requirements for course management such as seperate log in for Instructor, Students and TA's with individual rights and permissions. It also had facilities to set reminders on mail and through SMS. Allowed instructors to distribute grades through automated email and dispute redressal for assignments and labs.  <a href="#">  link to source code</a></p>
AUG-DEC 2012 Technologies	<p>Blood Bank Module for live HIS system, <i>Module in OpenMRS</i>  <i>Spring MVC, Hibernate, Liquibase, Javascript, Java</i></p> <p>Developed a blood bank management module in <a href="#">OpenMRS</a>. The module records and maintains the accounts of all the blood units in the hospital along with their expiry dates. It also notifies user of their expiry. It is currently <b>deployed</b> across all the 20 district hospitals of Himachal Pradesh state in India.  <a href="#">  link to source code</a></p>

## SCHOLARSHIPS AND CERTIFICATES

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DECEMBER 2013	<a href="#">ICTD Emerging Researcher Scholarship</a> to attend ICTD pre-conference symposium and ICTD main conference.
MARCH 2013	Ranked Top 3% out of 224,160 in <a href="#">Graduate Aptitude Test Exam 2013</a> conducted by IIT-Bombay. Awarded <a href="#">GATE Scholarship</a> based on result by AICTE, India.