भारतीय प्रौद्योगिकी संस्थान खड़गपुर
Indian Institute of Technology
Kharagpur

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PUBLICATIONS/PATENTS

- **An Un-tethered Mobile Shopping Experience** – MOBIQUITOUS 2013
- **Vivid Mixer and player tool (patent pending)**

ACADEMIC & PROFESSIONAL QUALIFICATIONS

EDUCATION	YEAR OF PASSING	AUTHORISING INSTITUTE	MARKS OBTAINED
X	2008	CBSE	93%
XII	2010	CBSE	92.3%(PCM)
B.Tech plus M.Tech in CSE	2015	IIT KGP	9.10/10 (Till 8th Sem)

CAREER ACHIEVEMENTS

- Campus **topper from IIT Kharagpur** in Data Analytics Contest of American Express 2014.
- Ranked **#224 among 4000+ teams** in Codesprint 2014, **Hackerrank**.
- Ranked **#282 out of 1477** in Ad Infinitum, **Hackerrank**.
- Ranked **#242 out of 1408** in Lunchtime, **Codechef**.
- Ranked **#22 out of 986 participants** in Target Hiring Challenge, **Hackerearth**.
- Ranked **#25 out of 728 participants** in Glydel Tech hiring Challenge, **Hackerearth**.
- Ranked **#5 out of 300+ participants** in CodeCyphers**, Hackerearth**.
- Ranked **#13 out of 300+ participants** in ProSort, **Hackerearth**.
- Rated **Specialist in Codeforces**.
- Additional CGPA of **8.90/10** in department of Mathematics and Computing(**pursuing Minor**).
- Earned statement of accomplishments from **Stanford University** for successfully completing:
  - **Machine Learning** by Andrew Ng scoring **100%**
  - **Cryptography** 1 by Dan Boneh scoring **99.3%**
  - **Algorithms: Design and analysis**, Part 2 by Tim Roughgarden scoring **82.3%**
- Awarded **MCM scholarship** for four years during my Bachelors.
- Ranked **#16 amongst 1,400 students** in my first semester by scoring SGPA of **9.57/10**.
- **O(log n)** rating in Hackerrank.
- Placed among **top 1% in the nation** in Indian National Physics Olympiad (INPhO) 2010.
- AIEEE state rank #19, **National Rank #601 among 1 million students**.
- Ranked **#1 among 4,000+ students** and got a laptop as prize in Punjab, State level Engineering Competition organized by Rayat and Bahra College.
- **School topper** in X class.

CONFERENCES/HACKATHONS

- Presented my idea on **Add Cab - A cab sharing Android App for Wearable devices** in Android Wear Hackathon organized by GDG Android, Canada.
- Participated in **Conference in Number Theory** from 12-14 December 2012 in Department of Mathematics, Jadavpur University, Kolkata.

INTERNSHIPS/TECHNICAL EXPERIENCE

Project **Real Time Emergency Response (rtER) System** May 2014 – July 2014
Sponsored by ***Mozilla Ignite Challenge, USA***
Location ***McGill University, Canada***
Brief Description This project involves live streaming, tagging and filtering of video feeds from smartphone to web browser. This project is being integrated with Google Glass, OpenGL rendering, use of accelerometer, temperature detectors. I worked here and accomplished following tasks in **android app** of rtER:

- Detection of Network change
- Recording audio communication by intercepting microphone and speaker
- Audio Communication through Telephony in background
- Integrated live streaming of Audio with video image frames from android smartphone to video server and then to web server written in Go

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Project **Auto-Discovery & System-Initiation Concepts in Mobile PoS** May 2013 – July 2013
Location ***IBM, India Research Lab, New Delhi***
Brief Description In my internship at Telecom & Mobile Research Group, IBM-IRL I basically accomplished three major tasks in **android app** named "SmartShopper" :
1) SQLite Database design for storing local information on customer and merchant device
2) Design and implementation of interface for adding, editing and saving list of items in customer's device
3) Wireless transfer of customer's lists and corresponding bill between customer and merchant device

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Project **Security in Online Social Networks** Dec 2013 – Jan 2014
Location ***PEC University of Technology, Chandigarh, India***
Brief Description Allowed limited amount of users to decrypt the safety critical trends in a Twitter Trend Map

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Project **A web based Inventory Management System** May 2012 – July 2012
Location ***PUDA Bhawan, Punjab Govt. , Sector-62, Mohali***
Brief Description Allowed online orders and issues of stock items to authenticated users.
This system allows to keep track of various items like pendrive, printers etc. issued by IT & C branch of PUDA to its various employees by keeping record of users and available quantity of items in a database. Proper authentication of users is verified during login and various security issues are taken in consideration. Alerts are activated when supply of items fall below a threshold level

PROJECTS

Project **Automated tracking of Indian Classical Dance in Labanotation using Kinect Skeletal Data** Jul 2014 – Present
Brief Description Tracking postures of Bharatanatyam using Kinect skeletal data and generating a script describing the dance movements in Labanotation

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Project **StayConnected** Aug 2014 – Present
Brief Description An android app which keeps us connected to strongest WiFi and notifies with Best proxy(if behind one) by pinging bytes. This app also profiles to save battery.

Project **Native Language Identification from English writings** Aug 2014 – Present
Brief Description Using supervised learning to train the machine to deduce the native language of a user from its english writing. We are also using various NLP models to extract good features and increase accuracy.

Project **Influence propagation in Location based Social Networks (LBSN)** Aug 2014 – Present
Brief Description Analyzing to inference the influence of writing reviews, tips and comments among friends in Yelp and FourSquare Social Networks.

Project **Studying Deleted Tweets in Twitter** Jan 2014 – Apr 2014
Brief Description This project involved collecting and studying information about Tweets that people delete on Twitter. In this work we looked into the questions as to why people delete tweets, and are there significant characteristic specialties in the tweets that are deleted and the users who delete them.

Project	**Randomizing Batch Verification of ECDSA Signatures**	Jan 2013 – April 2014
Brief Description	In AfricaCrypt 2012, we proposed several symbolic computation algorithms for batch verification of ECDSA signatures. Here, we demonstrate that these algorithms too can be randomized. We theoretically and experimentally established that our seminumeric algorithm is more efficient than Montgomery ladders for NIST curves over prime fields.	

Project	**Twitter Trend Map**	March-April 2013
Brief Description	Built a service which gets trending topics from Twitter and shows them as world cloud in google maps.	

Project	**Search application for facebook account timeline**	March 2013
Brief Description	Built a browser based search application of facebook timeline activities like posts, likes, messages, comments.	

Project	**JIS (Judiciary Information System)**	Feb 2012 – April 2012
Brief Description	This system allows management of court cases for judges, registrars, police officers and lawyers. I implemented it thoroughly and documented SRS, SA/SD, UML design and Test Suite design.	

POSITIONS OF RESPONSIBILITY

- Machine Learning Teaching Assistant — July 2014 – Present
- Programming and data structures tutor — Aug-Nov 2012
- Student Mentor — Aug 2012- Present

SKILLS AND ABILITIES

- **Languages known** : C, C++, C#, Objective C, Java, Python, Haskell, HTML, CSS, Javascript, PHP, SQL, Go, Verilog, Qt, LATEX, Prolog.
- **Libraries**: FFmpeg, LibSVM, ANN library, OpenSSL, python nltk, wordnet, gephi, jQplot, BeautifulSoup , Preview Support Library, Cocoa, AVFoundation, Gibs LDA, Nayes Bayes, IBM Worklight.
- **Softwares/Tools**: Lex/Flex, YACC/Bison, Cnet, Octave, Matlab, Weka, Rapidminer, Xcode, SolidWorks, Xilink, Adobe CS6 Dreamweaver, Maya, Eclipse ADT, SQLite, Kinect for Windows SDK, Microsoft Visual Studio, WampServer, MySQL
- **APIs**: Google Translate, MSDN translator, Twitter, Google Maps
- **Platforms/OS**: Windows(C#), Linux(Utilities), Mac OSX(Objective C), Android (App dev.)
- **Hardware**: IA-32 x86, MIPS

OTHER RELEVANT WORK/EXPERIENCE

- Reconstructed 3D point cloud from 2D images. **[Computer Vision]**
- Implemented Edge Detection algorithms i.e. Fuzzy Logic, Sobel, Prewitt, Laplacian of Gaussian and its zero crossings. Also, compared Gaussian and median filters and calculated their PSNR values. **[Computer Vision]**
- Built image and video mosaics from multiple views of a panoramic scene in matlab. **[Computer Vision]**
- Implemented Linear Regression, Logistic Regression, Artificial Neural Networks, Support Vector Machines, Learning curves, Recommender Systems in Octave. **[Machine Learning]**
- Implemented Sequential Minimal Optimization algorithm for training SVMs in C. **[Machine Learning]**
- Compared accuracies of various models in weka. **[Machine Learning]**
- Acquainted with perceptron learning algorithm, VC dimension, upper bound on generalization error, expectation maximization, Gaussian mixture models, Naïve Bayes classifier, graphical models, sum product message propagation algorithm and hidden markov models. **[Machine Learning]**
- Acquainted with heuristic search algorithms, constraint satisfaction problems, game playing, propositional logic, first order logic, planning and probabilistic inferencing. **[Artificial Intelligence]**
- Implemented various compiler phases in lex/flex and yacc/bison. **[Compilers]**
- Designed and implemented a 32 bit RISC processor in Verilog and simulated it on FPGA. **[Computer Organization and Architecture]**
- Implemented Snake & Ladders game and ERP system in Java. **[Software Engineering]**
- Implemented Linux command interpreter (Shell), Ticketing System and Convex Hull involving multi-threading. **[Operating System]**
- Implemented CSMA/CA, Slotted Aloha, LLC protocols in CNet. Familiar with socket programming. **[Networks]**