Tarang **Chugh**

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Education

		CGPA
Michigan State University (2015-Present)	PhD in Computer Science & Engineering • Biometrics, Latent Fingerprints	4.0 / 4.0 (Till 3rd Semester)
IIIT Delhi (2009-2013)	B. Tech. (Hons.) in Computer Science & Engineering • Department Rank: 2 (w/ Hons.) • Specializations: Image Analysis and Machine Intelligence, Data Analytics, Mobile Computing, Finance	9.42 / 10.0

Work Experience

PRIP Lab, MSU (Aug'15 -Present)

Graduate Research Assistant - Biometrics Group
Advisor: Dr. Anil K. Jain
- Latent Fingerprint Value Prediction: Crowd-based Learning, **FingerprintMash**, **Tech.Report**
- Automated Latent Value Determination, read **paper.**

IBM Research, New Delhi (Feb'14 – Aug'15)

Software Engineer (Research) - Information Management & Analytics Group
- *Project 1:* Mining twitter data to detect events related to law & safety and ranking them based on their veracity and impact
- *Project 2:* Elimination of name discrepancies in IBM sales and services records

IIIT Delhi (Dec'13 - Feb'14)

Research Assistant - Image Analysis & Biometrics Lab
Advisor: Dr. Mayank Vatsa and Dr. Richa Singh
- Matching composite sketches and digital face images using Transfer Learning
- Uses evolutionary algorithm to learn parameters for inductive transfer learning

IIIT Delhi (May'13 - Jul'13)

Software Engineer Intern (Systems Development) - Mobile & Ubiquitous Computing
Advisor: Dr. Amarjeet Singh
- Designed an interface to visualize power consumption in IIIT Delhi campus
- Live data fed by Raspberry Pi sensor systems placed at 40+ electricity meters

INRIA, Nancy, France (May'12 - Nov'12)

Software Engineer Intern (Networks Research/Development) - MADYNES Team
Advisor: Dr. Isabelle Chrisment
- Designed a bridge network to interconnect anonymous file sharing network 'i2p' and content rich BitTorrent network; Added DHT support, UDP Tracker Support
- Designed Multi-Bridge Protocol and Cache Manager; (5000+ lines of code) [**link**]

IIIT Delhi (May'10 - Jul'10)

Software Engineer Intern (Pattern Recognition Research) - PreCog Team
Advisor: Dr. Ponnurangam Kumaraguru
- Community detection on blogs; identifying leaders of cliques spreading hate speech (anti-religion/racism);
- Project funded by Department of Information Technology, Govt. Of India.

Publications

K. Cao, **T. Chugh**, J. Zhou, E. Tabassi, A. K. Jain, **Automatic Latent Value Determination**, International Conference on Biometrics (ICB), 2016 [**link**]

T. Chugh, H.S. Bhatt, R. Singh, and M. Vatsa, **Matching Age Separated Composite Sketches and Digital Face Images**, *International Conference on Biometrics: Theory, Applications and Systems (**BTAS**)*, 2013 [oral ppt.] [**link**]

Teaching Experience

Teaching Assistant (Spring 2017)

Pattern Recognition
- Graduate level course,
- Designing and grading homework assignments and conducting help hours.

Teaching Assistant (Fall 2013)

Introduction to Programming Course (Python)
- Responsible for mentoring 20 students (out of 160),
- Lab sessions, doubt clearing sessions, quiz and exam paper checking.

Head Teaching Assistant (Summer 2013)

Summer Refresher Module on C language [Class Size: 56]
- Designed 8-week long online refresher module with a team of 3 Junior TAs,
- Including assignment quizzes, exams and a programming competition.

Teaching Assistant (Fall 2011) — System Management Course [Class Size: 60/120]
- Mentored students to conduct lab sessions for fellow students

Selected Projects

Learning Latent Fingerprint Value Determination, PRIP Lab, MSU (Aug'15 – December'16)
- Developed a HTML5/ PHP based crowdsourcing tool, available at **http://www.fingerprintmash.org/**
- In future, this module will be included in a dashboard designed to assist law enforcement agencies.

Identifying Event Veracity on Twitter: A Spatio-Temporal Approach, IBM Research (May'14 – Aug'15)
- Ranks law and safety events detected on twitter based on their veracity and impact,
- Uses user/event level spatio-temporal features and incremental SVM; able to tackle rumors
- In future, this module will be included in a dashboard designed to assist law enforcement agencies.

Name Normalization Tool, IBM Research (Jul'14 – Aug'15)
- Eliminates customer name discrepancies (missing/incomplete information),
- Links all name variants to single identifier,
- Uses approximate text-matching techniques to score and rank the name variants.

MeetUp: Connecting Friends [Android Application] (Aug'14 – Aug'15)
- Considers user location, budget and food preferences to recommend restaurants,
- Suggestions are budget friendly and located equidistant from all members,
- Powered by Google App Engine, GeoLocation API and Foursquare API.

Matching Age Separated Composite Sketches and Digital Face Images, IIIT Delhi (Jan'12 – Apr'13)
- Fusion of histogram of oriented gradients (HOG) & rotation and scale invariant image moments,
- Prepared IIITD Composite Sketch database; Work published in BTAS'13 [oral presentation]. [**link**]

Foogle: Food Ordering with Live Inventory, IIIT Delhi [Android Application & WebApp] (Jan'12 – Apr'12)
- Food ordering application with live inventory and cashless payment,
- Better stock management for vendors; Powered by Android App Engine. [2000+ lines of code]. [**link**]

Technical Skills

Programming Languages	Java, C, Python, C#, JavaScript
Tools & Technologies	MATLAB, Eclipse, Latex, Visual Studio, Google App Engine, Android App Development, HTML/CSS, MySQL, Mango Automation, Adobe Photoshop
Advanced CS Courses (Grade: A+/A)	**A+:** Machine Learning, Pattern Recognition, Multimedia Security **A:** Ad-hoc Wireless Networks, Applied Cryptography, Cellular Data Networks, Computer Vision, Data Mining, Data Warehousing, Database System Implementation, Mobile Computing, Technical Communication, Theory of Probability and Statistics

Selected Awards

IIIT Delhi (2013)	1st Prize CodeWars'13, Programming Competition, #Teams: 40+
IIIT Delhi (2013)	Best Project Award, Multimedia Security Course
Indraprastha Int'l School (2009,2007)	Chairman's Award of Excellence & Pride of Indraprastha
CBSE Board, Govt. of India (2007)	Certificate of Excellence for scoring 100% [awarded to top 0. 1%]
International Informatics Olympiad (2008)	All India Rank – 1 [Std. XI], Cash Prize & Desktop Computer

Positions of Responsibility

Reviewer: MISP 2014
Student Member of IIIT Delhi Training and Placement Cell (2012-2013)
Head Boy, Indraprastha International School (2006-2009)

Co-Curricular

Child Rights Volunteer with CRY (Child Rights & You), NGO (May'10 – Jul'10)
Member of ACM Student Chapter, Dance Club, Theatre Club and Arts Club