

Romil Bhardwaj

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EDUCATION	Indraprastha Institute of Information Technology (IIIT), Delhi, India 2011 – 2015 B.Tech. with Honors, Computer Science and Engineering Minor in Economics, GPA - 8.85/10 Honors Thesis: <i>Augmenting Face Recognition with Social Context</i>
RESEARCH EXPERIENCE	Microsoft Research Jul 2015 – Present Research Fellow , Mobility, Networks and Systems Group Bangalore, India Mentors: Dr. Ramachandran Ramjee, Dr. Krishna Chintalapudi <ul style="list-style-type: none">▪ Wireless Systems - Conducted research on coexistence of heterogeneous transmit power nodes in wireless networks. Developed & implemented a new carrier sensing technique[2] for IEEE 802.11 MAC protocol, restoring throughput fairness in power-diverse networks. Published at NSDI 2017.▪ Vision + ML Systems - Spearheaded the unsupervised traffic camera calibration research efforts. Proposed and implemented crowdsourcing, deep learning and calibration pipelines to automatically calibrate cameras[1]. Work published at BuildSys 2017 and received best paper and best demo awards.
WORK EXPERIENCE	Microsoft Corp. Apr 2014 – Jul 2014 Software Development Engineer - Intern Hyderabad, India <ul style="list-style-type: none">▪ Built a high-performance data transformation adapter for Microsoft BizTalk Azure. One of the 2 intern projects to be later shipped to production.
PUBLICATIONS	[1] R. Bhardwaj , G. Tummala, G. Ramalingam, R. Ramjee and P. Sinha, “AutoCalib: Automatic Traffic Camera Calibration at Scale” in <i>Proceedings of ACM BuildSys</i> , Delft, Netherlands, 2017. (Best Paper and Best Demo) [2] R. Bhardwaj , K. Chintalapudi and R. Ramjee, “Skip-Correlation for Multi-Power Wireless Carrier Sensing” in <i>Proceedings of USENIX Networked Systems Design and Implementation (NSDI)</i> , Boston, MA, 2017. [3] R. Bhardwaj , G. Goswami, R. Singh and M. Vatsa, “Harnessing Social Context for Improved Face Recognition” in <i>Proceedings of IEEE International Conference on Biometrics (ICB)</i> , Phuket, Thailand, 2015. [4] G. Goswami, R. Bhardwaj , R. Singh and M. Vatsa, “MDLFace: Memorability Augmented Deep Learning for Video Face Recognition” in <i>Proceedings of IEEE International Joint Conference on Biometrics (IJCB)</i> , Clearwater, FL, 2014.
AWARDS & ACHIEVEMENTS	Best Paper , ACM BuildSys 2017 Best Demo , ACM BuildSys 2017 National Finalist , Soccer League, Indian Robot Olympiad 2013 Among the top 0.1% candidates in pan-India high school science examination, 2009
UNDERGRAD RESEARCH PROJECTS	SCADA Deployment at IIIT-Delhi goo.gl/DAv13S with Prof. Amarjeet Singh 2013 Part of the Energy@IIIT-Delhi group that deployed systems to collect data from 200+ energy meters and AHU controllers across the campus. Wrote RS-232 ModBus & BACnet Python/C drivers for Raspberry Pis to collect, cache and relay data, collecting over 1 million data points every day. Learning Deep Representations for Face Recognition in Videos 2014 with Prof. Mayank Vatsa & Prof. Richa Singh Implemented a new measure [4] for quantifying face feature richness based on the Shannon entropy of image patches. Used denoising autoencoders to learn lower dimensional representations of face images & perform face recognition. Achieved performance comparable to Facebook’s state-of-the-art DeepFace. Inferring Social Structures from Group Photographs goo.gl/UqkciL with Prof. Mayank Vatsa & Prof. Richa Singh 2014 Designed algorithms [3] to generate social graphs from collections of group photographs and leveraged them to augment face recognition systems. Generated a Python/D3 visualization of the inferred social graph for IIIT-Delhi’s class of 2015.

CarDashian – In-Car Navigation Sans Distractions

youtu.be/SynXm6Z7fcQ

Built a low cost solution using Android phones to project navigation directions and speed directly onto a car's windscreen without any dedicated hardware. Adjudged the "Most Innovative Project" in the intro to HCI course at IIIT-Delhi, Winter 2014.

TEACHING EXPERIENCE

Teaching Assistant, MTH-201 Introduction to Probability and Statistics

One of the very few undergraduate teaching assistants. Conducted tutorials, office hours, designed and graded assignments and quizzes.

TALKS

AutoCalib: Automatic Traffic Camera Calibration at Scale

Conference Talk

BuildSys 2017, Delft, Netherlands (Co-located with SenSys)

Skip-Correlation for Multi-Power Wireless Carrier Sensing

Conference Talk (**Video: goo.gl/XRUQz2**)

NSDI 2017, Boston, MA

PATENTS

Skip-Correlation based Symmetric Carrier Sensing with Multiple Power Levels

Patent pending

ACTIVITIES & VOLUNTEERING

Chairman, ACM Student Chapter, IIIT-Delhi

2013 – 2014

Organized hackathons, reading sessions and secured funding from corporate sponsors.

Design and Delivery, Campus Newsletter, IIIT-Delhi

2012 – 2014

Managed visual design and delivery for the bi-annual newsletter with 3500+ recipients.

Teaching Volunteer, Child Rights and You, Delhi

2012

Taught underprivileged children arithmetic and counting in understaffed schools in the slums of Delhi.

SKILLS & LANGUAGES

Languages

Python, C, C++, C#, Java, GoLang

Libraries and Frameworks

Numpy, Tensorflow, OpenCV, Android, Pandas, Caffe, Keras, Scikit, Django, Celery, D3, Xilinx ISE, MongoDB

Hardware

Raspberry Pi, Beaglebone, WARP, Xilinx Virtex 6

REFERENCES

Dr. Ramachandran Ramjee

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Dr. Krishna Chintalapudi

Researcher, Microsoft Research Redmond

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Dr. Mayank Vatsa

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