

Ashish Kumar

EDUCATION	Ph.D. in Computer Science (Aug 2017 - Present) <i>University of California, Berkeley</i>
	B. Tech. in Computer Science (CGPA: 9.84/10) (Jul 2011 - May 2015) <i>Indian Institute of Technology Jodhpur</i>
WORK EXPERIENCE	Research Fellow (Jul 2015 - Aug 2017) <i>Microsoft Research India</i>
	Research Intern (May 2014 - Jul 2014) <i>Georgia Institute of Technology</i>
PUBLICATIONS	Resource-efficient machine learning in 2 KB RAM for the Internet of Things A. Kumar, S. Goyal, M. Varma in <i>International Conference on Machine Learning 2017</i>
	ProtoNN: Compressed and accurate kNN for resource-scarce devices C. Gupta, A. Suggala, A. Gupta, H. Simhadri, B. Paranjape, A. Kumar, S. Goyal, R. Udupa, M. Varma and P. Jain in <i>International Conference on Machine Learning 2017</i>
TALKS & SEMINARS	Microsoft Research, Redmond on <i>The Edge of Machine Learning</i> (November, 2017)
	Amazon Research, Palo Alto on <i>The Edge of Machine Learning</i> (Sept, 2017)
	Facebook AI Research, Melno Park on <i>The Edge of Machine Learning</i> (Sept, 2017)
	Microsoft Research, Cambridge on <i>The Edge of Machine Learning</i> (April, 2017)
	Oxford University, UK on <i>The Edge of Machine Learning</i> (April, 2017)
PROJECTS	Compressing and Speeding up Bing Ranker (Jul 2015 - Mar 2016) <i>Advisor: Dr Manik Varma, Microsoft Research</i>
	<ul style="list-style-type: none">• Analysis of Bing Search data showed redundancy in features used for making search predictions• Proposed a sparse ranker as an extension to LDKL (non-linear tree classifier) & implemented a thresholding based procedure to learn sparse LDKL to optimize NDCG@k/Accuracy• Achieved 10x speed-up and 10x compression over the currently deployed Bing Ranker
	Parallel Sparse Matrix - Sparse Vector Multiplication (May 2014 - Jul 2014) <i>Advisors: Prof. Dr David Bader and Dr Jason Riedy, Georgia Institute of Technology</i>
	<ul style="list-style-type: none">• Compared 5 different algorithms to multiply sparse matrix - sparse vector in parallel• Implemented performance portable version of sort & merge technique in OpenMP & observed up to 2x speed-up over other methods (compared on dynamic graphs simulated in Stinger Software)
	Virtual Edge Detection, MIT Media Labs Design Workshop (Jan 2015) <i>Advisor: Dr Rahul Bhargava, MIT Media Labs</i>
	<ul style="list-style-type: none">• Worked with a Blind School to develop a hardware (Raspberry Pi) to enable visually impaired people to recognize printed shapes/images• The hand held device vibrated at the outlines of a printed shape when hovered over the entire printed page, giving a sense of the outlines of printed shape to the user• Used an approximate edge detection method on thresholded image for extremely low response time
	Smart Traffic Analyzer, IBM National Technical Challenge (NTC) (Sep 2014)
	<ul style="list-style-type: none">• Developed an algorithm to locate public buses in real time without requiring any hardware on buses• Clustered the GPS data of commuters and marked large clusters moving together as buses and tracked them to identify bus routes; used filtering techniques to avoid false positives• Implemented it as a mobile app and tested it on synthetic data modeled on Poissons Distribution Secured 3rd Position Nationally for our novelty and implementation