Ashish Kumar

Current Position

Ph.D. Student (Aug 2017 - Present)
University of California, Berkeley

Work Experience

Research Fellow (Jul 2015 - Aug 2017)
Microsoft Research India

Research Intern (May 2014 - Jul 2014)
Georgia Institute of Technology

Education

Indian Institute of Technology Jodhpur (Jul 2011 - May 2015)
B. Tech. in Computer Science and Engineering
CGPA: 9.84/10 (*Among top 3 in Institute*)

Publications

Visual Memory for Robust Path Following
Oral Presentation
A. Kumar*, S. Gupta*, D. Fouhey, S. Levine, J. Malik
Neural Information Processing Systems, Montreal, Canada, August 2017

FastGRNN: A Fast, Accurate, Stable and Tiny Kilobyte Sized Gated RNN
A. Kusupati, M. Singh, K. Bhatia, **A. Kumar**, P. Jain, M. Varma
Neural Information Processing Systems, Montreal, Canada, August 2017

Resource-efficient machine learning in 2 KB RAM for the Internet of Things
A. Kumar, S. Goyal, M. Varma
International Conference on Machine Learning, Sydney, Australia, August 2017

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 amd P. Jain
International Conference on Machine Learning, Sydney, Australia, August 2017

Talks & Seminars

The Edge of Machine Learning, MSR Redmond	(Oct 2017)
The Edge of Machine Learning, MSR Cambridge	(April 2017)
ML Algorithms for On-Device Prediction, Amazon Research Palo Alto	(Sep 2017)
The Edge of Machine Learning, Facebook AI Research Melno Park	(Sep 2017)
KiloByte Sized Models for Edge Devices, Oxford University	(April 2017)

Selected Projects

Virtual Edge Detection, MIT Media Labs Design Workshop (Jan 2015)
Advisor: Dr Rahul Bhargava, MIT Media Labs

- Worked with Blind School to develop a device (Raspberry Pi) to identify printed shapes/images
- The hand held device vibrated only at the outlines of a shape when hovered over the entire page
- Used an approximate edge detection method on thresholded image for extremely low response time

Smart Traffic Analyzer, IBM National Technical Challenge (NTC) (Sep 2014)

- 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