

GAURAV GUPTA

Electrical and Computer Engineering
216 Abercrombie Lab
Rice University, Houston, TX
United States

Email ID- gaurav.gupta@rice.edu
Contact no. +1 832-682-9696
Webpage- gaurav16gupta.github.io

Education

Rice University, Houston TX, United States

(Aug 2018 - expected 2023)

Ph.D. in Electrical and Computer Engineering
Advised by Prof. Anshumali Shrivastava

Indian Institute of Technology, Hyderabad, India

(Aug 2010 - May 2014)

B.Tech in Electrical Engineering, GPA : 8.23/10

Interests

Hashing, Information Retrieval, Machine Learning, Large Scale Data Structures, Randomized Algorithms

Publications/Preprints

- **Sub-linear Sequence Search via a Repeated And Merged Bloom Filter (RAMBO): Indexing 170 TB data in 14 hours**
[Gaurav Gupta](#), [Minghao Yan](#), Benjamin Coleman, R. A. Leo Elworth, Todd Treangen, Anshumali Shrivastava
- **RAMBO: Repeated And Merged BloOm Filter for Multiple Set Membership Testing (MSMT) in Sub-linear time**
[Gaurav Gupta](#), Ben Coleman, Tharun Medini, Vijai Mohan, Anshumali Shrivastava
- **Siamese Networks for chromosomes classification**, BIC, ICCV, 2017
[Swati](#), [G. Gupta](#), M. Yadav, M. Sharma, L. Vig
- **Information Extraction from Hand-marked Industrial Inspection Sheets**, CBDAR, IAPR ICDAR, 2017
[G. Gupta](#), Swati, M. Sharma, L. Vig
- **Indoor Localisation and Navigation on Augmented Reality Devices**, IEEE ISMAR, 2016
[G. Gupta](#), N. Kejriwal, P. Pallav, E. Hassan, S. Kumar, R. Hebbalaguppe
- **An AR Inspection Framework: Feasibility Study with Multiple AR Devices**, IEEE ISMAR, 2016
R. Perla, R. Hebbalaguppe, [G. Gupta](#), G. Sharma, E. Hassan, M. Sharma, L. Vig, G. Shroff

Professional Experience

Amazon Search Labs (A9), Palo Alto

(May 2019 - Aug2019)

Applied Scientist

Manager - Vijai Mohan (Senior Principal Applied Scientist), Advisor- Prof. Anshumali Shrivastava

Worked on efficient sublinear and low memory indexing method for constraint filtering. Proposed a novel idea of repeated and merged Bloom filter.

TCS Innovation Labs, Delhi, India

(July 2014 - Aug 2018)

Researcher R&D

Manager - Dr. Gautam Shroff, Advisor - Dr. Lovekesh Vig, Dr. Ehtesham Hassan

Worked on document reading, object recognition for retail businesses, marker based head motion tracker. Other independent projects on indoor localization systems for Google Glass and augmented reality based reconfigurable Inspection Framework for head mounted devices. Learnt key technologies of image processing (motion tracking, text detection and object detection), convolutional neural networks, machine learning, reinforcement learning, algorithms and android app development.

Technical Skills

Programming Languages

Python, C++, Java (basic), Pyspark, SQL, OpenCV, Keras, LaTeX

Tools

Matlab, Octave, Android Studio, Visual Studio, Xcode.

Academic Research

- **Rice University, Houston TX**
 - STORM: Towards End-to-End Training of Regression Models on the Edge. (Jan 2019 - April 2019)
 - Rank aggregation from pairwise comparison. (Oct 2019 - Dec 2019)
 - A review of Matrix sensing.
- **Indian Institute of Technology, Hyderabad**
Low complexity N-Dimensional Matrix determinant calculator. (Jan 2013 - April 2013)

Relevant Coursework

Rice University, Houston TX

Random Processes, Machine Learning, Imaging through scattering medium, Probabilistic Data structures, Optimization, Statistical Signal Processing (ongoing), NLP seminar (ongoing).

Indian Institute of Technology, Hyderabad

Calculus, Complex variables and Linear Algebra , C/C++ Programming Lab, Differential Equations, Linear Optimisation, Probability and Random Processes, Digital Signal Processing, Digital Communication, Speech Signal Processing, Digital System Design, Computer Organisation, Control Engineering, Image and Video Processing, Organisational Behaviour and Work Psychology, Economics

Achievements

- Ranked first at Neilsen's Image Recognition Hackathon- 2017 for "Hole detection/ product out of stock" retail store challenge.
- Ranked among top 0.4 % in IIT-JEE 2010.

Workshops/Conferences Attended

- Neural Information Processing Systems (**NeurIPS-2019**), Vancouver, Canada
- IAPR International Conference on Document Analysis and Recognition (**ICDAR-2017**), Kyoto, Japan.
- Deep Learning and Reinforcement Learning Summer School (**DLSS, RLSS**) CIFAR CRM, organised by *Graham Taylor, Aaron Courville and Yoshua Bengio*, MILA Montreal, June 2017.
- IEEE International Symposium on Mixed and Augmented Reality (**ISMAR-2016**), Mexico.
- ACM IKDD Conference on Data Science, 2016.
- National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), IIT Patna, 2015.

Academic Services and Extra-Curricular

- Teaching assistant- Probabilistic Algorithms and Data- Structures (2020)
- Volunteered at Neural Information Processing Systems (NeurIPS-2019), Vancouver, Canada (2019)
- Academic Mentor for Rice ECE Graduate Student Association (2020)
- Media Head (photography and videography) at Indian Students at Rice (ISAR) (2019-2020)
- Student Coordinator at Training and Placement Cell IIT Hyderabad. (2013-14)
- Coordinator of Electronics Club IIT Hyderabad. (2012-13)
- Participated at national level ABU ROBOCON- 2013 Pune. (2013)
- Active member of National Service Scheme Team-IIT Hyderabad (2011)