Sanjana **Garg**

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Education

Georgia Institute of Technology Atlanta, Masters in Computer Science — *Aug 2019 - Present*

Indian Institute of Technology Kanpur, BTech in Computer Science and Engineering, 8.4/10 — *Jul 2013 - May 2017*

Minor in Linguistic Theory

Work Experience

Rivigo Services Pvt. Ltd., Software Development Engineer I & II — *Jun 2017 - Jul 2019*

- Built a centralized map service using crowdsourced map data to visualize, look up and tag points of interest like tolls, pitstops, and warehouses.
- Augmented and integrated a routing engine for cheapest, shortest and fastest routes.
- Analyzed historical GPS data of trucks and used that for ETA prediction and mileage increment.
- Built a generic search service on top of ElasticSearch that ingested data from multiple sources and enabled search across multiple platforms.
- Designed and built a scalable communication service supporting SMS, email, push notifications and IVR.

Kivi Capital, Algorithmic Trading Intern — *May 2016 - Jul 2016*

- Built high frequency trading models with time-adaptive approaches based on pair trading.
- Experimented with novel algorithms and approaches to exploit the imbalance in buy and sell volume.

Projects

Video Analytics at Scale, Research Project, Prof. Joy Arulraj, Database Lab, Georgia Tech — *Aug 2019 - Present*

- Studying state of the art research in database systems for video analytics, particularly for editing data tasks like insertion and updation.
- Contributing to the in-house project database system for videos *EVA*(Exploratory Video Analytics).

Graph Query Optimization, Research Project, Prof. Medha Atre, IIT Kanpur — *Jan 2017 - Apr 2017*

- Employed parallel processing offered by GPUs, for optimization of conjunctive join queries on RDF (Resource Description Framework) graph.
- Studied BitMat data structure, a compact bit-matrix representation of RDF triples in main memory.

Graph Visualization Tool, Introduction to Database Systems, Prof. Sumit Ganguly, IIT Kanpur — *Jan 2016 - Apr 2016*

- Built an interactive tool using graph clustering to visualize large and complex graphs inspired by social network graphs.
- Leveraged PostgreSQL to efficiently implement Power Iteration Clustering algorithm for clustering the huge graph.

Object Recognition in Surveillance Videos, Machine Learning, Prof. Harish Karnick, IIT Kanpur — *Jan 2016 - Apr 2016*

- Identified automobiles in video frames and classified them into 2/3/4 wheelers and pedestrians.
- Used various techniques for feature extraction, background subtraction and experimented with multiple classifiers and boosting algorithms.

High Performance Caching, Computer Architecture, Prof. Mainak Chaudhuri, IIT Kanpur — *Jan 2016 - Apr 2016*

- Analysed the performance of thrashing and scan-resistant policies for memory intensive applications.
- Focused on the abstraction of insertion policy from replacement policy and compared it with the existing policies.

Perl to x86 Compiler, Compilers, Prof. Subhajit Roy, IIT Kanpur — *Jan 2016 - Apr 2016*

- Built an end-to-end cross compiler of Perl in Python using `ply` package for lexing and parsing.
- Implemented referencing-dereferencing operators, loops and if-then-else statements, along with basic integer and string operations.

Skills

Programming Java, Python, C, C++, Assembly(x86, MIPS)

Frameworks Spring, Hibernate, Spark, ELK, LAMP

Others MySQL, PostgreSQL, MongoDB, REST, XML, CUDA, Redis, LaTeX, Git

Publication

Agent based simulation of the evolution of society as an alternate maximzation problem

A. Sanyal, S. Garg, A. Unmesh, H. Karnick

2017 International Conference on Behavioral, Economic, Socio-cultural Computing (BESC), 2017

Relevant Courses

Machine Learning Machine Learning, Computer Vision, Multi-Agent Systems, ML for Trading, Social Computing

Systems Operating Systems, Database Systems, Computer Organization, Computer Architecture, Computer Systems Security, Compiler Theory

Theory Data Structures and Algorithms, Advanced Algorithms, Theory of Computation

Honors & Awards

- **Ranked in top .02%**, amongst 1,400,000 in IIT-JEE, 2013
- **KVPY Fellow**, Awarded by Department of Science and Technology, Govt. of India, 2013
- **Selected for Orientation Camp in Indian Physics Olympiad (InPhO)**, only 45 students from all over India were selected, 2012
- **Qualified NSEC**, National Standard Examination in Chemistry, conducted by HBCSE, 2012