Akash Jain | CS15S037

Indian Institute of Technology Madras

Placement Registration Number: 55/CS/18/003

Publication

- Akash Jain, Rupesh Nasre and Balaraman Ravindran. "***DCEIL: Distributed Community Detection with the CEIL Score.***" In 19th IEEE International Conference on High Performance Computing and Communications 2017 (**IEEE HPCC2017**) held at Bangkok, Thailand.

Education

Program	Institution	%/CGPA	Year of Completion
M.S. (Computer Science and Engg.)	Indian Institute of Technology Madras	**7.6/10**	2018
B.E. (Computer Science and Engg.)	IET, DAVV, Indore, M.P.	**70.83%**	2012
XII (M.P. Board)	School For Excellence, Chhatarpur, M.P.	**84.6%**	2008
X (M.P. Board)	School For Excellence, Chhatarpur, M.P.	**88.8%**	2006

Key Projects

1. Benchmarking of Distributed Graph Processing Frameworks **August 2017 - Present**

Guide: Prof. Balaraman Ravindran and Prof. Rupesh Nasre *M.S. Project, Team Size:1*

- Ongoing empirical research to design and implement community detection algorithm for temporal graphs on subgraph-centric graph processing platform and compare it against vertex and edge-centric graph processing platforms.
- Implementing libraries for machine learning algorithms and evaluating their performance on different frameworks i.e. GoFFish, Apache GraphX, Apache Giraph, PowerGraph.

2. DCEIL: Distributed Community Detection with the CEIL Score **April 2016 - July 2017**

Faculty: Prof. Balaraman Ravindran and Prof. Rupesh Nasre *M.S. Project, Team Size:1*

- Designed, Implemented and Published a machine learning algorithm to detect communities better than state-of-the-art in the large graphs.
- Can be used in the detection of cyber-communities in social networks, recommendations based on the interest group, and estimating hidden features in a social network.
- DCEIL is fast, scalable and maintains the quality of communities. It outperforms the existing state-of-the-art distributed Louvain algorithm by 180% on an average in Normalized Mutual Information (NMI) Index.
- DCEIL is implemented in Scala language on Distributed graph processing framework GraphX.

Professional Experience

Project Associate **July 2015 - Present**

Industrial Consultancy and Sponsored Research, IIT Madras

ILDS(Interdisciplinary Laboratory for Data Sciences)

- Implementing APIs for machine learning algorithms on Spark and Scala.
- Parallelization of network analytics algorithms for big data.

Associate Professional: Product Developer **July 2012 - September 2014**

Computer Sciences Corporation India Pvt Ltd.(CSC), Indore, India *Team Size:40+*

nbA(new business Accelerator)

- Application programming and enhancements for a CSC specific insurance product delivered to the client.
- Translated business requirement documents to technical design documents and implementation.
- Mentored and taught new resources to work and collaborate proactively.
- Set up and maintained a local Development Region, offshore, to expedite debugging & development, and reducing turnaround time for defects & new enhancements.

Course Projects

1. Query Recommendation using Content Similarity, PageRank & Query Logs **Jul - Nov 2015**
Faculty: Prof. Sayan Ranu, Searching & Indexing in Large Dataset *Course Project, Team Size:2*

- Designed and Implemented an Improved Query Recommendation Systems (IQRS) for Wikipedia.
- Employed content similarity, used TF-IDF and cosine similarity for the same.
- Recommended Wikipedia pages for a given query using page rank scores and previous query logs.

2. Graph classification using frequent sub-graph mining **January - April 2016**
Faculty: Prof. Sayan Ranu, Data Mining *Course Project, Team Size:2*

- To study graph mining tools and to develop a classifier for classification of AIDS molecules, studied and experimented with gSpan, FSG, Gaston and analyzed their relative performance.
- Used SVM classifier for the graph classification and obtained an F1-score of about 0.76
- Wrote a program for finding the min-dfs code of a graph to check for isomorphism.

3. Alumni Portal (CSC COIN : Collaborative Open Innovation Network) **Dec 2010 - Nov 2011**
Guide: Assistant Prof. Bhawna Nigam & Sanjit Kumar (Delivery Manager at CSC) *B.E. Project, Team Size:4*

- **Skills Used**: Java, JSP, HTML, JavaScript, Apache Tomcat, sqlyog
- Designed and implemented an industrial project "Alumni Portal" for Computer Sciences Corporation India Pvt. Ltd., it helps to connect current and ex-employees of the company.
- Received project completion certificate from Computer Sciences Corporation, for the same.

Technical Skills

- **Languages**: *Proficient*- Java, Scala, LaTeX. *Basic*- C, C++
- **Big Data Frameworks** - GoFFish, Apache Spark, Apache Hadoop, Apache Giraph
- **Web technology** - Basic knowledge of {HTML, JavaScript, MySQL, XML}
- **Other tools** - Eclipse IDE, MTLAB, g++, Git, VirtualBox, Maven, Gephi, Weka, sqlyog, SQL Plus.

Course Work

- **Machine Learning**: Introduction to Machine Learning, Data Mining, Searching & Indexing in Large Datasets
- **Computer Science**: Codes for Distributive Storage, Advanced Data Structures and Algorithms, Operating Systems, DBMS, Networks
- **Mathematics**: Linear Algebra and Random Processes

Positions of Responsibility

- Coordinated in "F-Quiz" event organized by Forces Club. (B.E., 2009-2010)
- Coordinated in "Udaan" event organized by Forces Club. (B.E., 2009-2010)
- Volunteered in cultural event "AAKSHANK". (B.E., January 2009)

Co - Curricular and Extra - Curricular Activities

- **Coding Competitions**: Current InterviewBit global ranking: 3979/104239 (99.96 percentile) as on 16 Sep'17.
- Presented poster in ILDS Workshop on "Benchmarking Graph-Processing Platforms", held at IIT Madras in Nov'16.
- Attended 42nd International Conference on Very Large Data Bases, held at New Delhi in Sep'16.
- Member of world's largest technical professional organization IEEE.
- Secured 1^{st} position in Football tournament in CS Trophy (an intra-department event), May'17.