Nitin Chandra Badam

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EDUCATION

Indian Institute of Technology (IIT), Guwahati — Expected May 2015
Bachelor of Technology in Computer Science & Engineering — *CGPA: 8.83/10*

Narayana Junior College, Hyderabad, India — May 2011
Higher Secondary School Certificate - Andhra Pradesh State Board — *Aggregate: 97%*

RESEARCH INTERESTS

Big Data Analytics, Data Management, Distributed Computing, Graph Processing

PUBLICATIONS

- **Nitin Chandra Badam**, Yogesh Simmhan, "**Subgraph Rank: PageRank for Subgraph-Centric Distributed Graph Processing**", Proceedings of 20^{th} International Conference on Management of Data (COMAD'14) (*Research Full Paper, 9% research paper acceptance*)
- **Nitin Chandra Badam**, Aradhna Kumari, Jagannathan Srinivasan, "**Information Lifecycle Management in Evolving Healthcare Databases**", Proceedings of 19^{th} International Conference on Management of Data (COMAD'13) (*Industry Full Paper, 12.5% full paper acceptance*)

HONORS

- **Student Delegate to Japan**: One of the 60 student representatives selected from India for the $\mathbf{15}^{\text{th}}$ Science and Technology Batch of JENESYS 2.0 to Japan in June, 2014.
- Secured All India Rank **46** in the All India Engineering Entrance Examination (AIEEE 2011) among **1.3 million** candidates (**top 0.003%**).
- Shortlisted for the final round of OP Jindal Engineering and Management Scholarship (OPJEMS 2011) for being among the top 2% students from IIT Guwahati
- Among the top $\mathbf{0.3}$% of **0.5 million** candidates across India in IITJEE-2011 organized by the Indian Institutes of Technology.
- Awarded **MCM** scholarship by the Indian Institute of Technology Guwahati during 2011-2012 for being among the top meritorious students.
- Secured $\mathbf{160}^{\text{th}}$ rank in the **International Mathematics Olympiad** in the year 2010.

RESEARCH PROJECTS

Exploiting Block Structure of Graphs in Distributed Graph Processing Aug2014-till date
Advisors: Dr. Yogesh Simmhan, IISc Bangalore and Dr. Diganta Goswami, IIT Guwahati
Bachelor's Thesis Project

- Most real-world graphs have inherent block-like substructures (clusters), this property (if exploited) can provide massive performance boosts in large-scale graph processing.
- The goal of the project is to identify algorithmic (and also platform-level) optimizations for efficient subgraph-centric graph data processing.
- Also looking into optimizations for the critical components of the underlying distributed system like message handling, graph partitioning and synchronization.
- Currently studying algorithms like Similarity Rank, Graph Coloring, Minimum Spanning Tree.

Subgraph Rank: Subgraph Centric Approach for computing PageRank May - Aug 2014
Advisor: Dr. Yogesh Simmhan, SERC Department, IISc Bangalore
Summer Research Internship(2014) at IISc Bangalore, India

- Designed a generalized Subgraph Rank algorithm, which efficiently computes the PageRank values in large-graphs and scales better, and works best for subgraph-centric graph platforms.
- Observed 25-75% performance improvement against the naïve PageRank on real-world graphs from Stanford SNAP database, when implemented on GoFFish graph analytics platform (deployed across Amazon AWS instances).

Information Lifecycle Management in Evolving Healthcare Databases May - Aug 2013
Advisor: Dr. Jagannathan Srinivasan, Oracle Corporation, USA
Summer Research Internship(2013) at Sarada Research Labs, Bangalore, India

- Worked on a *PRLM* (Patient Record Lifecycle Management) tool to provide control over retention, archiving and purging of hospital records.
- My contribution was towards developing a 'Merging Archives' module, and the challenge was to deal with the evolving nature of the underlying database and to avoid orphan records.

Exploring FP-Growth and SimRank Algorithms Nov 2014 -till date
Advisor: Dr. Amit Awekar, Department of CSE, IIT Guwahati

- Implemented FP-Growth (FP-tree) and SimRank (Similarity Rank) algorithms in Sequential, Shared Memory Parallel and Distributed paradigms.
- Studying quality & performance on datasets of varying characteristics across above 3 paradigms.

Rumour detection in social networks using selective opinion mining Nov 2013 - till date
Advisor: Dr. Sanasam Ranbir Singh, Department of CSE, IIT Guwahati

- The goal is to design a rumour detection model in Social Networks (testing on twitter data) using Opinion mining among a subset of users.
- The model is based on mining the opinions of top-k influential users in a topic-sensitive manner (like TwitterRank) in the event of rapidly disseminating news, to get a credibility score.

OTHER PROJECTS

Survey on Distributed Data Mining Platforms	Survey on Scalable Storage Systems
Lexical Analyzer and Parser (for subset of C)	Text File Compressor (Huffman Algorithm)
Restaurant Management System	Hospital Database System

TECHNICAL SKILLS

- **Operating Systems:** Microsoft Windows, Linux
- **Programming languages:** C/C++, Visual Basic, **Basics** : Python, Java, Prolog
- **Database Management:** MySQL, PL/SQL, PostgreSQL
- **Others**: nano, Vim, LaTeX, Visual Studio, MS Office, Eclipse, Linux Shell Scripting

RELEVANT COURSEWORK

Data Structures & Algorithms	Computer Networks	Probability Theory
Formal Languages & Automata	Operating Systems	Discrete Mathematics
Optimization	Compilers	Multi-variable Calculus
Software Engineering	Databases	Linear Algebra & Matrices
Computer Architecture	Psychology	Differential Equations
Data Mining*	Distributed Systems*	Functional Programming*
Computer Graphics*	Machine Learning**	Web Intelligence & Big Data**

(** MOOCs) (*Ongoing)

OTHER ACTIVITES

- Events Head of Computer Science and Engineering Association (CSEA, IITG) and Batch Representative of B.Tech Final Year, CSE, IIT Guwahati (2014).
- Organizer of *Technothlon '11* (Hyderabad edition), the International Technical School Championship, as part of IITGs annual technical festival, *Techniche '11*.
- Secured 1^{st} prize in the State-level United Nations quiz competition in 2008.
- Hobbies include Adventure trips (mainly trekking), playing keyboard, reading and sports like Volleyball and swimming.

REFERENCES

- Dr. Yogesh Simmhan (Asst. Professor, SERC Department, IISc Bangalore, India)
- Dr. Jagannathan Srinivasan (Oracle Corporation, Nashua, NH, USA)
- Dr. Diganta Goswami (Professor & HoD, Department of CSE, IIT Guwahati)