

## Expertise:

Java, Python, Natural Language Processing, Databases, Data Mining, Machine Learning, Geographic Information Sciences, Spatial Data Analysis

## Education:

Master of Science, Computer Science and Engineering (2014-2016) <b>IIT Kharagpur</b> Guide: Dr. Soumya K. Ghosh, Department of Computer Science and Engg., IIT Kharagpur, India	<b>9.58/10 Dept Rank-1</b>
B.Tech in Computer Science and Engineering (2009-2013) <b>Heritage Institute of Technology, Kolkata,</b> West Bengal University of Technology, India	<b>8.65/10</b>
Higher Secondary Examination (2007-2009) S.E.Railway Mixed Higher Secondary School (EM), Kharagpur, India Council for Indian School Certificate Examination	<b>91.80 %</b>
Secondary Examination (2006-2007) S.E.Railway Mixed Higher Secondary School (EM), Kharagpur, India Council for Indian School Certificate Examination	<b>92.60 %</b>

## Experience:

Jan'17-Present	<b>Blue Scholar</b> at IBM Research Labs, Bengaluru, India.
Oct'15 - Dec'16	<b>Junior Research Fellow</b> at Department of Computer Science and Engg., IIT Kharagpur.
Jul'16 - present	<b>Teaching Assistant</b> for Foundations of Computing Systems, assisting Prof. Pallab Dasgupta, with 70+ students
Mar'15 - Oct'15	<b>Intern</b> at IBM Research Labs, Bengaluru, India.
Jun'13 - March'15	<b>Junior Project Officer</b> at Department of Computer Science and Engg., IIT Kharagpur.
Jun'12 - Jul'12	<b>Summer Intern</b> at Center for Data Engineering, IIIT Hyderabad guided by Dr. Kamal Karlapalem.
Jul'11 - Jul'11	<b>Summer Intern</b> at Department of CSE, IIT, Kharagpur guided by Dr. Rajib Mall.

## Publications:

- **VLDB '18– A Framework for instantiating NLQ Essentials**, 44th International Conference on Very Large Databases, VLDB 2018 (Demo Track), Rio de Janeiro, Brazil.  
*Manasa Jammi, Jaydeep Sen, Ashish Mittal, et al.*
- **COMSNETS '16– TrajSummary: Mobility Summary of Individuals**, 8th International Conference on Communication Systems and Networks, COMSNETS 2016, Bengaluru, India.  
*Manasa Jammi, Vinay Kolar, Karthik Bharath, Sambit Sahu, Soumya K. Ghosh*
- **ICIIS '14– Spatial Decision Tree for Accident Data Analysis**, IEEE International Conference on Industrial and Information Systems, ICIIS, December 2014, Gwalior, India.  
*Manasa Jammi, Shrutilipi Bhattacharjee, Soumya K. Ghosh and Sudeshna Mitra*

## Patents:

- **Disambiguating NLQ interpretations with Answers By Example (Filed)**
- **System and Method for Automated Testing of Natural Language Interface to Knowledge Bases (Filed)**
- **System and Method for generating Nested Structured queries from Natural Language (Filed)**
- **Natural Language Query Generation Equivalent to Click through Navigation (Applied and cleared internal evaluation)**
- **Automatic NLQDB update using minimal user feedback (Applied and cleared internal evaluation)**

## Projects:

### **FINESSE - Framework for Instantiating NLQ ESSEntials** (*Jan 2017 - Present*)

- Built an end to end system for instantiating the existing Natural Language Querying System at IBM Research—worked on orchestrating among all the components and built and exposed Swagger APIs for the entire process.
- (*Accepted as a Demonstration Paper at VLDB '18*)

### **Determining Mobility Summaries of Individuals from GPS Traces** (*March 2015 - Present*)

- Built a framework to mine the Spatio-temporal movement summary of individuals from their location traces. Created a visualization demo and extended the framework for next-location prediction.
- (*Won the **Best Poster Award** at the Intern Poster Open House Session at IBM India Research Labs, Bangalore, India.*)

### **Building a framework for facilitation of Location Based Services** (*Jun'13 - Jul'14*)

- Developed an android application for Point Data Updation of Geographic Maps using OGC compliant standard GeoSMS.
- The application has been deployed by the Department of Science and Technology, India, at a National Level, and the pilot deployments at Barnala and New Delhi have been successful.

### **Accident Reporting System using GeoSMS** (*Jan'14 - Jul'14*)

- Extended the GeoSMS framework for Accident Reporting, and built an application which will be used by the Police Officials.
- (*Secured 2nd Position at IBM iCare- National Technical Challenge 2014 for the above*)

### **Accident Data Analysis using Spatial Decision Trees** (*Jul'14 - Dec'14*)

- Coded an analysis system for the accident data collected from the application mentioned earlier, to predict the occurrence of accidents. Tested using historic accident data on the NH4 National Highway.
- (*Accepted at IEEE ICIS, 2014*)

### **Spread of Information and finding Top-K influentials in a social network** (*Jan 2013 - Jan 2014*)

- Worked on a problem which can be generalized as k-hop dominating set problem, where a maximum of k hops will be allowed to spread the information among all the nodes of the graph.
- (*Submitted and under review at the Information Processing and Management Journal*)

### **Determining Maximal Common Subgraphs in Geometric Graphs** (*Jun 2012 - July 2012*)

- Worked on the problem of finding similar road structures given the street maps of two cities. The problem is a variant of finding the most frequent similar subgraphs, given two geometric graphs.

### **FPGA Hardware Acceleration using Mittrion-C** (*Jun 2011-Mar 2012*)

- Implemented basic Computational Geometry and sorting algorithms using a parallel programming paradigm to be run on FPGA based Hardware Accelerators, using Mittrion-C.
- (*Published at the 3rd All-India Inter-Engineering College Academic Meet 2012.*)

## Skills:

### **Programming**

Proficient in • Java • Python • Matlab

Acquainted with • Android • R • C • C++

### **Web Languages**

• Javascript • PHP • HTML • CSS

### **Database and GIS Management**

• Oracle Spatial 11g • ArcGIS • OGC Web Map Service • OGC Web Feature Service

### **Libraries and Tools**

• Spring Framework • Numpy • Scipy • Weka • Enterprise Architect •  $\text{\LaTeX}$  • Git

## Workshops Organized:

- Conducted a workshop on Geospatial Data Modeling and Mobile Apps for GI Application for Government Officials from sixteen National Agencies – Worked with a team of 6, and headed the Mobile Application Development Session (July 2016)

## Awards and Achievements:

- Recipient of the **Grace Hopper Celebration of Women in Computing, India, Student Scholarship, 2015**.
- Ranked among the **Top 25** who qualified for Overnite, the ICPC based Programming Contest, Kshitij, IIT-Kharagpur.
- Stood second in the Adobe Hackathon, GHCI, 2016
- **Founding Member, Head of Python Hobby Group** of ACM Student Chapter, Heritage Institute of Technology, Kolkata

## References:

- **Dr. Diptikalyan Saha**, Manager and Senior Researcher, IBM Research AI, Bangalore, India - *diptsaha@in.ibm.com*
- **Prof. Soumya K Ghosh**, Professor at Department of Computer Science and Engineering, Indian Institute of Technology, Kharagpur, India - *skg@cse.iitkgp.ernet.in*
- **Prof. Pallab Dasgupta**, Professor at Department of Computer Science and Engineering, Indian Institute of Technology, Kharagpur, India - *pallab@cse.iitkgp.ernet.in*
- **Dr. Vinak K Kolar**, Senior Data Scientist, NVIDIA, San Francisco Bay Area, United States of America