

Tanmoy Chakraborty

PRESENT ADDRESS University of Maryland Institute for Advanced Computer Studies (UMIACS)
A.V. Williams Bldg. Room 2132 tanchak@umiacs.umd.edu
College Park, MD 20742
<https://sites.google.com/site/tanmoychakra88/>

PERMANENT ADDRESS Sekhpura, Church Road (+91)9883538526
Post – Midnapur, Dist – Paschim Medinipur its_tanmoy@yahoo.co.in
West Bengal, India – 721101

RESEARCH INTERESTS Cybersecurity, Complex Networks, Web Social Media, Natural Language Processing, Information Retrieval

EDUCATION **University of Maryland, College Park, Maryland 20742 USA**
Post-doctoral Researcher, Department of Computer Science and Institute for Advanced Computer Studies (UMIACS),
Jan 2016 – present

- Advisor: Prof. VS Subrahmanian

Indian Institute of Technology, Kharagpur, India – 721302

Research Associate, Computer Science and Engineering,
Sep 2015 – Nov 2015

Indian Institute of Technology, Kharagpur, India – 721302

Doctor of Philosophy (Ph.D.), Computer Science and Engineering,
Dec 2011 – Sep 2015

- Thesis Topic: *Community Analysis in Large Networks: Methods and Applications*
- Advisors: Dr. Animesh Mukherjee and Prof. Niloy Ganguly

Jadavpur University, Kolkata, India – 700032

Master of Engineering (M.E.), Computer Science and Engineering
July 2009 – June 2011
GPA: 9.44/10

- Thesis Topic: *Multiword Expressions*
- Advisor: Prof. Sivaji Bandyopadhyay

Kalyani Government Engineering College, (Affiliated to West Bengal University of Technology, Kolkata), Kalyani, Nadia, West Bengal, Pin – 741235

Bachelor of Technology (B.Tech), Computer Science and Engineering
June 2005 – May 2009
GPA: 9.22/10

Midnapur Collegiate School, Midnapur, West Bengal, Pin-721101

Higher Secondary Examination (Board W.B.C.H.S.E)
May 2005
Aggregate: 91.60%

Secondary Examination (Board W.B.B.S.E)
May 2003
Aggregate: 90.75%

AWARDS/
ACHIEVEMENTS

- Received **Google India PhD Fellowship** (4 students from India and 40 students worldwide are selected). From July 2012 for 4 years
- Received **Xerox India Best PhD Dissertation Award**. 01/2016
- Received **Best Demo Award** in *IBM Day*, IIT Kharagpur, India, 2015. 08/2015
- Received **Best Poster Award** in *TechVista, Microsoft Research India's annual research symposium*, Bangalore, India, 2015. 01/2015
- Received **Yahoo award, KDD travel grant** and **ACM-India IARCS grant** for attending SIGKDD (2014), New York, USA. 07/2014
- **Honorable mention award** in *TechVista, Microsoft Research India's annual research symposium*, Coimbatore, India, 2013. 01/2013
- Selected for **Full International Travel Support** by DST, Govt. of India for attending *ASONAM* in Niagara Falls, Canada, Aug. 25-28, 2013 07/2013
- **Best presentation award** in *Workshop on Science and Engineering of Social Networks, 6th International Conference on Communication System and Networks (COMSNETS-2014)*, Bangalore, India, January 10, 2014. 01/2014
- **Best paper award** in Computer Science Track in *IEEE Cascom Postgraduate Student paper Conference*, 27th Nov, 2010, Kolkata, India. 09/2010
- **Best student award** in 2009 by *Tata Consultancy Services*. 2009
- **College Topper** in B.Tech 2009 batch (Gold Medal Award). 2009
- **Ranked 1st** for the post of *Assistant Professor in Computer science* discipline, organized by *College Service Commission*, West Bengal 02/2014
- Selected as a **funded student** for the *Latin American eScience Workshop 2013: Turning Data into Insight*, held in Sao Paulo, Brazil, May 13-15, 2013 (60 students are selected worldwide). 05/2013
- Qualified **UGC-NET** (University Grants Commission - National Eligibility Test) Examination in Computer Science & Application. 06/2012
- Ranked **2nd** in Master of Engineering (Computer Science & Engineering). 2011
- Qualified **GATE – 2009** (Graduate Aptitude Test in Engineering) Examination with score 515. 03/2009
- **Foundation for Excellence (FFE)** Scholarship. 2003-2009

THESIS

- **Tanmoy Chakraborty** (2011). *Multiword Expression*, Master of Engineering thesis, Jadavpur university, Kolkata.

BOOKS/
MONOGRAPHS

- **Tanmoy Chakraborty**. *Multiword Expressions: Towards Identification to Applications*, LAP LAMBERT Academic Publishing GmbH & Co., KG Heinrich-Bocking-Str. 6-8, 66121, Saarbrücken, Germany, ISBN 978-3-659-24956-3, 2012.

BOOK CHAPTERS

1. Sriram Srinivasan, **Tanmoy Chakraborty**, and Sanjukta Bhowmick. Identifying Base Clusters and Their Application to Maximizing Modularity. *Contemporary Mathematics. Graph partitioning and Graph Clustering. (D. A. Bader, H. Meyerhenke, P. Sanders and D. Wagner eds.)*, AMS-DIMACS, pp. 141-156, 2012.
2. **Tanmoy Chakraborty**, Suman Kalyan Maity, Rishiraj Saha Roy and Animesh Mukherjee. Emergence (as a book chapter in the book “Keywords of Systemic Vision”, Lambert Editions, ISBN 978-3-659-52781-4).

REFEREED
JOURNAL
PUBLICATIONS

1. Mayank Singh, Soumajit Pramanik and **Tanmoy Chakraborty**. PubIndia: A Framework for Analyzing Indian Research Publications in Computer Science. *DLib Magazine*, 21:11/12, ISSN 1082-9873, Nov 2015. (Invited paper)
2. **Tanmoy Chakraborty**, Niloy Ganguly and Animesh Mukherjee. An author is known by the context she keeps: significance of network motifs in scientific collaborations, *Social Network Analysis and Mining (SNAM)*, 5:16, Springer Vienna, ISSN 1869-5450, pp. 1-21, May 2015.

3. **Tanmoy Chakraborty**, Suhansanu Kumar, Pawan Goyal, Niloy Ganguly, Animesh Mukherjee. On the categorization of scientific citation profiles in computer sciences, *Communications of the ACM* (CACM), 58: 9, ISSN 0001-0782, pp. 82-90. (IF: 2.863)
4. **Tanmoy Chakraborty**. Leveraging disjoint communities for detecting overlapping community structure, *Journal of Statistical Mechanics: Theory and Experiment* (JSTAT), 5, ISSN 1742-5468, pp. P05017, May 2015. (IF: 2.056)
5. **Tanmoy Chakraborty**, Vihar Tammana, Niloy Ganguly, Animesh Mukherjee. Understanding and Modeling Diverse Scientific Careers of Researchers, *Journal of Informetrics*, 9:1, ISSN 1751-1577, pp. 69-78, Jan 2015. (IF: 3.58)
6. **Tanmoy Chakraborty**, Sriram Srinivasan, Niloy Ganguly, Sanjukta Bhowmick, Animesh Mukherjee. Constant Communities in Complex Networks, *Nature Scientific Reports* 3, 1825, ISSN 2045-2322, 2013. (IF: 5.078)
7. **Tanmoy Chakraborty**, Sandipan Sikdar, Niloy Ganguly and Animesh Mukherjee. Citation Interactions among Computer Science Fields: A Quantitative Route to the Rise and Fall of scientific Research, *Social Network Analysis and Mining (SNAM)*, 4:1, Springer Vienna, ISSN 1869-5450, pp. 1-18, 2014.
8. **Tanmoy Chakraborty**. Using Semantic Clustering for Detecting Bengali Multiword Expressions, *Informatica (Slovenia)*, 32:2, ISSN 0350-5596, pp. 103-113, 2014. (IF: 0.901)
9. **Tanmoy Chakraborty**, Dipankar Das and Sivaji Bandyopadhyay, Identifying Bengali Multiword Expressions using Semantic Clustering, *International Journal of Linguistics and Language Resources (Linguisticae Investigationes)*, 37:1, John Benjamins Publishing Company, ISSN 0378-4169, 2014.
10. **Tanmoy Chakraborty** and Sivaji Bandyopadhyay. Inference of Fine-grained Attributes of Bengali Corpus for Stylometry Detection, *Polibits*, 44, ISSN 1870-9044, pp. 79-83, 2011.

REFEREED
CONFERENCE
PUBLICATIONS

1. Dinesh Pradhan, **Tanmoy Chakraborty**, Saswata Pandit, Subrata Nandi. On the Discovery of Success Trajectories of Authors, In *25th International World Wide Web Conference* (WWW), Montreal, Canada, April 11-15, 2016. (Accepted)
2. **Tanmoy Chakraborty**, Ramasuri Narayanam. Cross-layer Betweenness Centrality in Multiplex Networks with Applications. In *32nd IEEE International Conference on Data Engineering* (ICDE), Helsinki, Finland, May 16-20, 2016. (Accepted)
3. Binny Mathew, Unnikrishnan TA, **Tanmoy Chakraborty**, Niloy Ganguly, Samik Datta. Mining Twitter Conversations around E-commerce Promotional Events. In *19th ACM conference on Computer-Supported Cooperative Work and Social Computing* (CSCW), San Francisco, USA, Feb 27 - Mar 2, 2016. (Accepted)
4. **Tanmoy Chakraborty**, Mayank Singh, Amrith Krishna, Niloy Ganguly, Pawan Goyal, Animesh Mukherjee. FeRoSA: A Faceted Recommendation System for Scientific Articles. In *20th Pacific-Asia Conference on Knowledge Discovery and Data Mining* (PAKDD), Auckland, New Zealand, April 19-22, 2016. (Accepted) (Acceptance rate: 17%)

5. Mayank Singh, Vikas Patidar, Suhansanu Kumar, **Tanmoy Chakraborty**, Animesh Mukherjee, Pawan Goyal. The role of citation context in predicting long-term citation profiles: an experimental study based on a massive bibliographic text dataset, In *24th ACM International Conference on Information and Knowledge Management (CIKM 2015)*, Melbourne, Australia, October 19-23, 2015, pp. 1271-1280.
6. **Tanmoy Chakraborty**, Sikhar Patranabis, Pawan Goyal, Animesh Mukherjee. On the formation circles in co-authorship networks. In *Proceedings of 21th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, Sydney, August 10 - 13, 2015, pp. 109-118. (Acceptance rate: 19.41%)
7. Mayank Singh, **Tanmoy Chakraborty**, Pawan Goyal and Animesh Mukherjee. ConfAssist: A Conflict resolution framework for assisting the categorization of Computer Science conferences. In *Joint Conference on Digital Libraries (JCDL)*, Tennessee, USA, June 21 -25, 2015, pp. 257–258.
8. **Tanmoy Chakraborty**, Natwar Modani, Ramasuri Narayanan, Seema Nagar. DiSCern: A Diversified Citation Recommendation System for Scientific Queries, In *31st IEEE International Conference on Data Engineering (ICDE)*, Seoul, Korea, April 13-17, 2015, pp. 555-566.
9. **Tanmoy Chakraborty**, Niloy Ganguly, Animesh Mukherjee. Automatic Classification of Scientific Groups as Productive: An Approach based on Motif Analysis, In *Proceedings of IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Beijing, China August 17-20, 2014, pp. 130-137. (Acceptance rate: 18%)
10. **Tanmoy Chakraborty**, Suhansanu Kumar, Pawan Goyal, Niloy Ganguly, Animesh Mukherjee. Towards a Stratified Learning Approach to Predict Future Citation Counts, In *Proceedings of ACM/IEEE Digital Libraries (jointly with JCDL and TPDF)*, London, United Kingdom, September 8-12, 2014, pp. 351-360. (Acceptance rate: 28%)
11. **Tanmoy Chakraborty**, Sriram Srinivasan, Niloy Ganguly, Animesh Mukherjee, Sanjukta Bhowmick. On the permanence of vertices in network communities, In *Proceedings of 20th ACM SIGKDD Conference on Knowledge Discovery and Data Mining*, New York City, August 24 - 27, 2014, pp. 1396-1405. (Acceptance rate: 14.6%) **(invited as a poster in Google Lab New York 2014 and IBM-ICARE 2014; invited as a premier paper at COMAD 2014, XRCI 2015, CODS 2015; got best poster award in Microsoft TechVista 2015)**
12. **Tanmoy Chakraborty**, Vihar Tammana, Niloy Ganguly, Animesh Mukherjee. Analysis and Modeling of Lowest Unique Bid Auctions, In *Proceedings of Sixth ASE International Conference on Social Computing (SocialCom-2014)*, Stanford, CA, USA, May 27 - May 31, 2014. (Acceptance rate: 11.9%)
13. **Tanmoy Chakraborty**, Srijan Kumar, M Dastagiri Reddy, Suhansanu Kumar, Niloy Ganguly, Animesh Mukherjee. Automatic Classification and Analysis of Interdisciplinary Fields in Computer Sciences, In *Proceedings of 2013 ASE/IEEE International Conference on Social Computing (SocialCom-2013)*, Washington D.C., USA, September 8- 14, 2013, pp. 180 - 187. (Acceptance rate: 9.6%)
14. **Tanmoy Chakraborty**, Sandipan Sikdar, Vihar Tammana, Niloy Ganguly, Animesh Mukherjee. Computer Science Fields as Ground-truth Communities: Their Impact, Rise and Fall, In *Proceedings of IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*,

Niagara Falls, Canada, August 25-28, 2013, pp. 426-433. (**Nominated for the best paper award**) (Acceptance rate: 13%)

15. **Tanmoy Chakraborty**, Abhijnan Chakraborty. OverCite: Finding Overlapping Communities in Citation Network, In *Proceedings of IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, Niagara Falls, Canada, August 25-28, 2013, pp. 1124 - 1131. (Acceptance rate: 13%)
16. **Tanmoy Chakraborty**. Identification of Nominal Multiword Expressions in Bengali Using CRF. In *Proceedings of 4th International Conference on Intelligent Human Computer Interaction (IHCI 2012)*, Kharagpur, India, December 27-29, 2012.
17. **Tanmoy Chakraborty**. Authorship Identification in Bengali Literature: a Comparative Analysis. In *Proceedings of 24th International Conference on Computational Linguistics (COLING 2012)*, Mumbai, India, December 8-15, 2012, pp. 41 - 50.
18. Santanu Pal, **Tanmoy Chakraborty** and Sivaji Bandyopadhyay. Handling Multiword Expressions in Phrase-Based Statistical Machine Translation, In *Proceedings of thirteenth Machine Translation Summit*, Xiamen, China, September 19-23, 2011, pp. 215 - 224.
19. **Tanmoy Chakraborty**. Identification of Noun-Noun (N-N) Collocations as Multi-Word Expressions in Bengali Corpus, In *Proceedings of 8th International Conference on Natural Language Processing (ICON 2010)*, IIT Kharagpur, India, December 8-11, 2010.
20. **Tanmoy Chakraborty** and Sivaji Bandyopadhyay. Authorship Identification using Stylometry Analysis: A CRF Based Approach, In *Proceedings of IEEE Cascom Postgraduate Student paper Conference*, Jadavpur University, Kolkata, November 27, 2010, pp. 66-69. (**Best paper award**)

REFEREED
WORKSHOP/
RESEARCH
COLLOQUIUM
PUBLICATIONS

1. Mayank Singh, Soumajit Pramanik, **Tanmoy Chakraborty**. PubIndia: A Framework for Analyzing Indian Research Publications in Computer Sciences, *Workshop on Mining Scientific Publications (WOSP), Joint Conference on Digital Libraries (JC DL)*, Tennessee, USA, June 21 -25, 2015.
2. **Tanmoy Chakraborty**, Sriram Srinivasan, Niloy Ganguly, Animesh Mukherjee, Sanjukta Bhowmick. On the permanence of vertices in network communities, In *Microsoft TechVista-2015, Microsoft Research India's annual research symposium*, Bangalore, India, January 23, 2015.
3. **Tanmoy Chakraborty**, Niloy Ganguly, Animesh Mukherjee. Rising Popularity of Interdisciplinary Research - an Analysis of Citation Networks, *Workshop on Science and Engineering of Social Networks, 6th International Conference on Communication System and Networks (COMSNETS-2014)*, Bangalore, India, January 10, 2014. (**Best presentation award**)
4. **Tanmoy Chakraborty**, Dipankar Das and Sivaji Bandyopadhyay. Semantic Clustering: an Attempt to Extract Multiword Expressions in Bengali, In *Proceedings of Multiword Expressions: from Parsing and Generation to the Real World (MWE 2011), The 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-HLT 2011)*, Portland, Oregon, USA, June 23, 2011, pp. 8 - 13.

5. **Tanmoy Chakraborty**, Santanu Pal, Tapabrata Mondal, Tanik Saikh and Sivaji Bandyopadhyay. Shared task system description: Measuring the Compositionality of Bigrams using Statistical Methodologies, In *Proceedings of Distributional Semantics and Compositionally (DiSCo), The 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-HLT 2011)*, Portland, Oregon, USA, June 24, 2011, pp. 38 - 42.
6. **Tanmoy Chakraborty** and Sivaji Bandyopadhyay. Identification of Reduplication in Bengali Corpus and their Semantic Analysis: A Rule Based Approach. In *Proceedings of Multiword Expressions: from Theory to Applications (MWE 2010), The 23rd International Conference on Computational Linguistics (COLING 2010)*, Beijing, China, August 28, 2010, pp. 73-76.
7. Dipankar Das, Santanu Pal, Tapabrata Mondal, **Tanmoy Chakraborty** and Sivaji Bandyopadhyay. Automatic Extraction of Complex Predicates in Bengali. In *Proceedings of Multiword Expressions: from Theory to Applications (MWE 2010), The 23rd International Conference on Computational Linguistics (COLING 2010)*, Beijing, China, August 28, 2010, pp. 37- 45.

INVITED TALKS

- National Institute of Technology (NIT), Durgapur, India, Dec 11, 2015
- National Institute of Technology (NIT), Rourkela, India, Oct 9, 2015
- Hijli College, Kharagpur, India, Oct 7, 2015.
- Kalyani Govt. Engg. College, Kalyani, Nadia, India, April 10, 2015.
- ACM iKDD CoDS, Bangalore, India, March 19, 2015.
- XRCI, Xerox Research India Research Symposium, Bangalore, Jan 22-23, 2015.
- 2nd Xerox Research Center India (XRCI) Open, an annual research exchange, Bangalore, India, Jan 22, 2015.
- 20th International Conference on Management of Data (COMAD 2014), Bangalore, India, Dec 17, 2014.
- University of Nebraska at Omaha, USA, Sep 5, 2014.
- Yahoo Lab, Bangalore, India, July 15, 2014.

CONFERENCE PRESENTATIONS

- Microsoft TechVista-2015, Microsoft Research India's annual research symposium, Bangalore, India, Jan 23, 2015.
- ACM/IEEE Digital Libraries (jointly with JCDL/TPDL), London, Sep 8-12, 2014.
- ACM SIGKDD Knowledge Discovery and Data Mining, New York City, Aug 24-27, 2014.
- 6th International Conference on Communication System and Networks (COMSNETS-2014), Bangalore, India, January 7-10, 2014.
- 2013 ASE/IEEE International Conference on Social Computing (SocialCom 2013), Washington D.C., USA, September 8-14, 2013.
- 4th International Workshop on Business Applications of Social Network Analysis (BASNA), collocated with ASONAM, Niagara Falls, Canada, Aug 25-28, 2013.
- IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Niagara Falls, Canada, August 25-28, 2013.
- Latin American eScience Workshop 2013, Sao Paulo, Brazil, May 13-15, 2013.
- Microsoft TechVista-2013, Microsoft Research India's annual research symposium, Coimbatore, India, Jan 24, 2013.
- 4th International Conference on Intelligent Human Computer Interaction (IHCI 2012), Kharagpur, India, Dec 27-29, 2012.
- 8th International Conference on Natural Language Processing (ICON), IIT Kharagpur, India, Dec 8-11, 2010.
- IEEE Communication Society Calcutta Chapter (Cascom) Postgraduate Student paper Conference, Jadavpur University, Kolkata, November 27, 2010.

PROFESSIONAL
SERVICES

- **Referee in Conferences:** NetSciCom 2016, Thirtieth AAAI Conference on Artificial Intelligence (AAAI 2016), International Conference on Computational Intelligence in Data Mining (ICCIDM 2015), 2nd IEEE International Conference on Recent Trends in Information Systems (ReTIS 2015), 24th International World Wide Web Conference (WWW 2015), International Conference on Signal Processing and Communications (SPCOM 2014), International Conference On Natural Language Processing and Cognitive Computing (ICONACC 2014), IEEE Students' Technology Symposium (IEEE TechSym 2014), 2nd International Conference on Eco-friendly Computing and Communication Systems (ICECCS 2014).
- **PC member in Conferences:** 25th International Joint Conference on Artificial Intelligence (IJCAI 2016), NetSciCom in conjunction with IEEE INFOCOM 2016, Third International Conference on Mining Intelligence and Knowledge Exploration (MIKE 2015), Symposium on Enabling an Intelligent Planet via Informatics and Cybernetics (IPIC 2015).
- **Reviewer in Journals:** Scientometrics, Computers & Security, IEEE Transactions on Knowledge and Data Engineering (TKDE), Physics Letters A, Journal of Systemics, Cybernetics, and Informatics (JSCI), Palgrave Communications (PALCOMMS), IEEE Transactions on Signal Processing, Journal of The Institution of Engineers (India).
- **Co-organizer:** Workshop on Graph-based Methods for Natural Language Processing (TextGraphs-10) with NAACL 2016.

TRAINING AND
RESEARCH
INTERNSHIP

- **IBM - Indian Research Lab (IRL)**, Bangalore, India on “*Recommendation and Ranking in multiplex networks*”. May 2014 – July 2014
- B.Tech Final year external project on “*Database Integrated Dynamic Webpage Design*” of Kalyani University (Kalyani, Nadia, India-740235). July 2008 – May 2009
- **Tata Consultancy Services**, Kolkata on “*Retail Shop System.*” May 2008 – July 2008
- **ARDENT**, Kolkata on “*Library Management System.*” May 2007 – June 2007

TEACHING
EXPERIENCE

Teaching Assistant

- Social Computing (Autumn Semester, 2014)
Indian Institute of Technology, Kharagpur
Instructor: Prof. Animesh Mukherjee, Prof. Pawan Goyal
- Complex Networks (Spring Semester, 2014)
Indian Institute of Technology, Kharagpur
Instructor: Prof. Animesh Mukherjee
- Speech and Natural Language Processing (Autumn Semester, 2013)
Indian Institute of Technology, Kharagpur
Instructor: Prof. Sudeshna Sarkar
- Complex Networks (Spring Semester, 2013)
Indian Institute of Technology, Kharagpur
Instructor: Prof. Animesh Mukherjee
- Programming and Data Structure (Autumn Semester, 2012)
Indian Institute of Technology, Kharagpur
Instructor: Prof. Animesh Mukherjee
- Programming and Data Structure (Spring Semester, 2011)
Jadavpur University, Kolkata
Instructor: Prof. Abhijit Kar
- System Programming (Autumn Semester, 2010)

Jadavpur University, Kolkata
Instructor: Prof. Nandini Mukherjee

PERSONAL
DETAILS

Father's Name: Sri Ranjit Chakraborty
Date of Birth: 12th January, 1988
Gender: Male
Nationality: Indian
Religion: Hindu
Hobby: Recitation, playing cricket, listening to music

REFERENCES

Niloy Ganguly
Professor, Dept. of Computer Science & Engg. Tel: +91-3222-283460
Indian Institute of Technology, Kharagpur, India-721302
E-mail: niloy@cse.iitkgp.ernet.in

Animesh Mukherjee
Assistant Professor, Dept. of Computer Science & Engg. Tel: +91-3222-283472
Indian Institute of Technology, Kharagpur, India-721302
E-mail: animeshm@cse.iitkgp.ernet.in

Sanjukta Bhowmick
Assistant Professor, Dept. of Computer Science Tel: 402-554-2081
University of Nebraska, Omaha, Nebraska 68182
E-mail: sbhowmick@unomaha.edu

Ramasuri Narayanam
Research Scientist Tel: +918067043817
IBM Research, India
E-mail: ramasurn@in.ibm.com

DECLARATION

I, Tanmoy Chakraborty, hereby do declare that all the above mentioned information are true to the best of my knowledge.

Date: 15.12.2015
Kharagpur, India

TANMOY CHAKRABORTY