# Curriculum Vitae: Animesh Mukherjee

1. Name: ANIMESH MUKHERJEE, अनिमेष मुखार्जी



- 2. (a) Nationality/ Citizenship: INDIAN
  - (b) Current Appointment and/or Status: Associate Professor, DEPART-MENT OF COMPUTER SCIENCE AND ENGINEERING, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR, INDIA - 721302
  - (c) Academic Degree: PhD
  - (d) Field of Research: Socio-technical systems.
- 3. Higher education (Bachelor's Degree onwards)

S No	Degree	Subject	Class	CGPA/%	Year	University	Rank
1	B Tech (H)	CSE	$I^{\rm st}$	89.8%	2003	HIT, Haldia	1
2	M Tech	CSE	$I^{st}$	9.43	2005	IIT Kharagpur	4
3	PhD	CSE			2009	IIT Kharagpur	
4	Post-Doc				2009-2011	ISI Foundation	

- 4. Personal skills (language ability): Bengali (mother tongue), English (fluent), Hindi (can speak, read and write).
- 5. Research achievements, publications, awards etc.
  - The table below quantitatively summarises the overall impact of Animesh's research:

Metric	Quantity
Total number of citations	3832 (according to Google Scholar)
<i>h</i> -index	31 (according to Google Scholar)
Journal Publications/Book Chapters	57

Metric	Quantity
A/A* rated conf paper (vital for CSE researchers):	60

# • Awards/recognition received.

S.No.	Name	Year	Donor organization	
1.	Distinguished member	2022	ACM	
2.	Best Student Paper Award	2021	ICADL	
3.	Ted Nelson Newcomer	2021		
	Best Paper Award		ACM	
4.	A K Singh Chair	2020	IIT Foundation, USA	
5.	Data grant of 1trillion URLs	2020	Facebook	
6.	Ethics in AI research award	2019	Facebook	
7.	Best Paper Honorable Mention	2019	ACM WebSci	
8.	Google course award	2019	Google	
9.	Humboldt fellowship	2017	Humph oldt	
	for experienced researchers		Humbolat	
10.	GYTI award	2017	SRISTI	
11.	Best Paper Honorable Mention	2016	ACM CSCW	
12.	IBM Faculty award	2015	IBM	
13.	INSA YS Medal	<b>2014</b>	INSA	
14.	Simons Associate	2013	ICTP	
15.	INAE YE award	2012	INAE	
16.	MSR PhD fellowship	2006	$\mathbf{MSR}$	
17.	ISCA YS award	2006	ISCA	

• Fellowship/Professional activities:

- (i) Associate Editor, Advances in Complex Systems.
- (ii) Humboldt Fellow (Experienced Researcher Category).
- (iii) Area Chair, AAAI
- (iv) Associate Chair, CSCW
- (v) Board Member, COMSNETS Association.
- Has the nominee delivered invited lecture(s) in India / abroad and/or chaired any scientific International Conference Symposium (give details):

Invited lectures (highly selective ones are marked in red):

- Invite speaker, SVNIT, Gujarat, 2023, Online.

- Invite speaker, Inderprastha Engineering College, Ghaziabad, 2022, Online.
- Invited speaker at TextGraphs 2022, Online.
- Invited speaker at L3S Hanover, 2022.
- Invited speaker at ETH Zurich, 2022.
- Invited speaker at NIT Warangal, 2022, Online.
- Invited speaker at CSIR-CSIO and IIT-Ropar, 2022, Online.
- Invited speaker at the Wikimedia Research Showcase, 2022, Online.
- Invited Lecture at NIT Warangal, Optimization Techniques in ML and AI workshop, 2022 Online.
- Invited lecture at IIT Ropar on AI for Social Good, 2022, Online.
- Mentor at the Diversity and Inclusion track, CoDS-COMAD 2022, Online.
- Invited speaker at the AI/ML workshop, CSIT Durg, Chandigarh, 2022, Online.
- Tutorial at AAAI 2022 on Hate speech: Detection, Mitigation and Beyond.
- Invited lecture in VLDE 2021 (Huawei + ACM India council), Online.
- Panelist in VLDE 2021 (Huawei + ACM India council), Online.
- In Invited speaker at the CCS workshop on Machine Learning and Network Science, 2021, Online.
- Invited speaker at the MMHS workshop, KONVENS 2021, Dusseldorf, Germany, Online.
- Panelist in the MMHS workshop, KONVENS 2021, Dusseldorf, Germany, Online.
- Invited talk at webinar on AI and cybersecurity, 2021, IIBF, Online.
- Invited talk at KIIT Bhubaneswar, 2021, Online.
- Invited talk at Amity University, Rajasthan, 2021, Online.
- Scene setter talk at the Stanford Internet Observatory workshop on E2EE Workshop on Incitement to Violence, 2021, Online.
- Invited talk at Leibniz AI Lab, Germany, 2021, Online

- Invited talk at operationalizing ethics workshop, Facebook, 2021, Online
- Tutorial at ICWSM 2021 on Hate speech: Detection, Mitigation and Beyond.
- Invited talk at Credco, Meedan, San Francisco, 2021, Online.
- Invited talk at G H Raisoni College of Engineering and Management, Pune, 2021, Online.
- Invited lecture at ACM Winter School on Fairness, Accountability and Transparency in AI, 2021, Online.
- Invited lecture at Flipkart, 2021, Online.
- Invited lecture at ICTP-CSRC Workshop on Big data, Machine Learning and Complexity research, 2020, Online.
- Invited talk at Machine Learning Prospective for Complex Networks workshop in CCS 2020, Online.
- Invited lecture at Kolaghat Engg. college, 2020, Online.
- Invited lecture at Guru Nanak Dev Engg. college, 2020, Online.
- Invited lecture at NIT Jalandhar, 2020, Online.
- Invited lecture at KIIT Bhubaneswar, 2020, Online.
- Invited lecture at JIET Jaipur, 2020, Online. Invited lecture at Cochin University, 2020.
- Invited lecture at MIU, ISI Kolkata on its foundation day, 2019.
- Invited speaker at PReMI 2019, Tezpur, Assam, 2019. ACM DSP lecture at UEM Jaipur, 2019.
- Invited panel lecture at Facebook, Delhi 2019.
- Invited lecture at NIST, Behrampur, Odisha 2019
- Invited lecture at UCET, VBU, Hazaribag 2019.
- Invited lecture at WebSci workshop at IIT Madras, 2019.
- Invited lecture at University of Hamburg, Germany, 2018.
- Invited lecture at MPI SWS, Kaiserslautern, Germany, 2018.
- Invited lecture at Google AI/ML Workshop, 2018.
- Invited lecture at University of Kerala, 2017.
- Invited lecture at BEL Workshop, Bangalore 2017.
- Invited speaker at the 2017 IISc workshop on User Generated Content Analysis.

- Invited to attend and collaborate at the strategy workshop 2017 on "Computation, Sciences and Society" held at Mysore Park Infosys campus. This workshop was organised by K Vijay Raghavan, Kris Gopalakrishnan, Manindra Agrawal, Nisheeth Vishnoi and Somenath Biswas.
- Invited for the early career experience talk at the India-KDD event of ACM SIGKDD 2016 at San Francisco. This is a flagship program of the Indian data mining and data science community organized as a session of the premium data mining conference ACM SIGKDD. (https://ikdd.acm.org/kdd2016/).
- Invited speaker for the Machine Learning Data Science event of Microsoft (MLDS 2016) (http://indiamlmeet.azurewebsites.net/ #agenda).
- Invited speaker at the IWML 2016 workshop at IIT Kanpur. This has been the flagship ML conference in India.
- Invited panelist at the Academic Research Summit jointly organized by ACM India and Microsoft Research.
- Invited to participate and talk on the event of Language Day 2016 jointly organized by ICTP, Trieste, Italy and SISSA, Trieste, Italy.
- Invited talk at TCS Innovation labs, Kolkata, 2016. Invited lecture at Microsoft Research India, Bangalore, 2015.
- Invited lecture at MCKVIE, Liluah, 2014.
- Invited lecture at ICTP, Trieste, Italy, 2014.
- Invited lecture at RCCIIT, Kolkata, 2014.
- Invited lecture at TU Darmstadt, Germany, 2013.
- Invited lecture at TU Darmstadt, Germany, 2013.
- Invited lecture at Indian Statistical Institute, Kolkata, 2013.
- Invited lecture at Workshop on Social Media Analysis and Data Mining, Dept. of CST, Bengal Engineering and Science University, Howrah, 2013.
- Invited lecture at Workshop on Recent Trends in Computing, Dept. of IT, Bengal Engineering and Science University, Howrah, 2013.
- Invited lecture at Workshop on Complex and Social Networks, Heritage Institute of Technology, Kolkata, 2013.

- Invited lecture at Modeling Linguistic Networks: from Language Structures to Communication Processes, Goethe University, Frankfurt, Germany, 2012.
- Invited lecture at INAE Annual Convention, CBRI, Roorke, 2012.
- Invited lecture at IMPECS Workshop on Social Computing, IIT Kharagpur, 2012.
- Invited lecture at S. N. Bose National Center for Basic Sciences, Kolkata, 2012.
- Invited lecture at Indian Statistical Institute, Kolkata, 2012.
- Invited lecture at Goethe University, Frankfurt, Germany, 2012.
- Invited lecture at Technical University of Darmstadt, Germany, 2012.
- Invited lecture at Workshop on Mathematical Physics of Complex Networks: From Graph Theory to Biological Physics, MPI PKS, Dresden, Germany, 2012.
- Invited lecture at Workshop on Social Networks, IMSc, Chennai, 2012.
- Invited lecture at Workshop on Social Networks, IMSc, Chennai, 2012.
- Invited lecture at Dynamics on and of Complex Networks, ECCS, Vienna, Austria, 2011.
- Invited lecture at Max Planck Institute of Evolutionary Anthropology, Leipzig, Germany, 2007.

# Conference/Workshop organization:

- 1. Area Chair, AAAI 2023.
- 2. Associate Chair, CSCW 2023.
- 3. Co-organiser, WSDM Tutorial on Hate Speech Analysis 2023.
- 4. Tutorial Co-Chair, CoDS-COMAD 2023.
- 5. Co-organiser, AAAI Tutorial on Hate Speech Analysis 2022.
- 6. Track Co-Chair (Algorithm and Theory Track), *IEEE* MASS 2022.
- 7. Session Chair, *CoDS-Comad* 2022.
- 8. Co-organiser, *IndoML* 2021.

- 9. Co-organiser, *ICWSM Tutorial on Hate Speech Analysis* 2021.
- 10. Co-organiser, *IndoML* 2020.
- 11. Award Committee Co-chair, COMSNETS 2020, 2021.
- 12. General Co-chair, COMSNETS 2019.
- 13. TPC Co-chair, *COMSNETS* 2018.
- 14. Organiser, ICNDE 2018.
- 15. Workshop Co-chair, *IKDD CoDS Data challenge* 2017.
- 16. Workshop Chair, ACM Compute 2017.
- 17. Workshop Co-chair, Social Networking Workshop, COM-SNETS 2017.
- 18. Workshop Co-chair, Social Networking Workshop, COM-SNETS 2016.
- 19. Co-organiser, MLCN 2015.
- 20. Workshop Co-chair, Dynamics on and of Complex Networks, ECCS 2013.
- 21. Workshop Co-chair, Dynamics on and of Complex Networks, ECCS 2011.
- 22. Co-organiser, *IJCNLP Tutorial* 2008.

#### Publications in archival conferences:

- Aggarwal, P., Chawla, P., Das, M., Saha, P., Mathew, B., Zesch, T. and *Mukherjee*, A. (2023). HateProof: Are Hateful Meme Detection Systems really Robust? In *WebConf 2023*, Austin, Texas, USA. [CORE RANK: A\*]
- Jaiswal, S. and *Mukherjee, A.* (2023). A History of Diversity in the Web (Conference). In *WebConf 2023* (The History of the Web Track), Austin, Texas, USA. [CORE RANK: A\*]
- Patel, U., Mondal, M. and *Mukherjee, A.* (2023). Dummy Grandpa, do you know anything?": Identifying and Characterizing Ad hominem Fallacy Usage in the Wild. In *ICWSM 2023*, Cyprus.
- Das, P., Keerthana, S., Panda, A., Reddy, B. P., Sarkar, S. and *Mukherjee*, A. (2023). Diversity matters: Robustness of bias measurements in Wikidata. In *WebSci* 2023, (short paper), Austin, Texas, USA.

- Das, M. and *Mukherjee*, A.. (2023). Transfer Learning for Multilingual Abusive Meme Detection. In *WebSci* 2023, (short paper), Austin, Texas, USA.
- Saha, P., Singh, K., Kumar, A, Mathew, B. and *Mukher-jee, A.* (2022). CounterGEDI: a controllable approach to generate polite, detoxified and emotional counterspeech. In *ECAI-IJCAI 2022 (AI for Good)*, Vienna, Austria. [CORE RANK: A\*]
- Gupta, V., Roychowdhury, S., Das, M., Banerjee, S., Saha, P., Mathew, B., Vanchinathan, H. P. and *Mukherjee, A*. (2022). MACD: Multilingual Abusive Comment Detection at Scale for Indic Languages. In *NeurIPS 2022 Datasets* and *Benchmarks*, New Orleans, USA, [CORE RANK: A\*]
- 8. Dash, S., Chakraborty, A., Ghosh, S., *Mukherjee, A.* and Gummadi, K. (2022). Alexa, in you, I trust! Fairness and Interpretability Issues in E-commerce Search through Smart Speakers. In *The WebConf 2022*, Virtually (online). [CORE RANK: A\*]
- 9. Das, P., Seelaboyina, S. B., Reddy, B. P., Sarkar, S. and *Mukherjee*, *A*. (2022). Quality Change: norm or exception? Measurement, Analysis and Detection of Quality Change in Wikipedia. In *CSCW 2022*, Virtually (online mode). [CORE RANK: A]
- 10. Jaiswal, S. and *Mukherjee, A.* (2022). Marching with the Pink Parade: Evaluating Visual Search Recommendations for Non-binary Clothing Items. In *CHI 2022* (case studies), New Orleans and online. [CORE RANK: A\*]
- Adak, S., Ahmad, A., Basu, A. and *Mukherjee, A.* (2022). Placing (Historical) Facts on a Timeline: A Classification cum Co-ref Resolution Approach. In *ECML-PKDD 2022 (ADS Track)*, Grenoble, France. [CORE RANK: A]
- 12. Hazra, R., Dwivedi, A., and *Mukherjee, A.* (2022). Is this bug severe? A text-cum-graph based model for bug severity prediction. In *ECML-PKDD 2022 (ADS Track)*, Grenoble, France. [CORE RANK: A]
- Dutta, P., Chakraborty, S., Roychowdhury, S., and *Mukherjee, A.* (2022). CRUSH: Contextually Regularized and User anchored Self-supervised Hate speech Detection. In *NAACL 2022 (Findings)*, Seattle, Washington. [CORE RANK: A]

- Das, M., Banerjee, S., and *Mukherjee, A.* (2022). Data Bootstrapping Approaches to Improve Low Resource Abusive Language Detection for Indic Languages. In *ACM Hypertext 2022*, Bacelona, Spain.
- Das, M., Banerjee, S. and *Mukherjee, A.* (2022). Hate Speech and Offensive Language Detection in Bengali. In *AACL-IJCNLP 2022*, Virtually (online).
- Chakraborty, S., Goyal, P. and *Mukherjee, A.* (2022).
   Fast Few shot Self-attentive Semi-supervised Political Inclination Prediction. In *ICADL 2022*, Hanoi, Vietnam.
- Chakraborty, S., Goyal, P. and *Mukherjee, A.* (2022). (Im)balance in the Representation of News? An Extensive Study on a Decade Long Dataset from India. In *In SocInfo* 2022 Glasgow, UK.
- Chakraborty, S., Medidoddi, V., Bantupalli, J. and Mukherjee, A. (2022). Decoding Demographic unfairness from Indian Names. In SocInfo 2022, Glasgow, UK
- Das, M., Saha, P., Mathew, B. and *Mukherjee, A*. (2022). HateCheckHIn: Evaluating Hindi Hate Speech Detection Models. In *LREC 2022*, Marseille, France.
- Jaiswal, S., Duggirala, K., Dash, A. and *Mukherjee, A.* (2022). Two-Face: Adversarial Audit of Commercial Face Recognition Systems. In *ICWSM 2022*, Atlanta, Georgia and online.
- Saha, P., Mathew, B., Garimella, K. and Mukherjee, A. (2021). "Short is the Road that Leads from Fear to Hate": Fear Speech in Indian WhatsApp Groups. In The WebConf 2021, Ljubljana, Slovenia. [CORE RANK: A\*] Media Coverage: The Wire, ToI, The Print, ClarionIndia, The Siasat Daily, India Today, Newsmeter, Sabrang India.
- Mathew, B., Saha, P., Yimam, S. M., Biemann, C., Goyal, P. and *Mukherjee*, A. (2021). HateXplain: A Benchmark Dataset for Explainable Hate Speech Detection. In *AAAI 2021*, Virtually (online mode). [CORE RANK: A\*]
- Nag, A., Samanta, B., *Mukherjee, A.*, Ganguly, N. and Chakrabarti, S. (2021). A Data Bootstrapping Recipe for Low-Resource Multilingual Relation Classification. In

CoNLL 2021, Virtually (online mode). [CORE RANK: A]

- Das, P., Reddy, B. P., Chakraborty, D., Sarkar, S. and *Mukherjee*, A. (2021). When expertise gone missing: Uncovering the loss of prolific contributors in Wikipedia. In *ICADL 2021*, Virtually (online mode). (Best student paper award).
- Das, M., Saha, P., Dutt, R., Goyal, P., *Mukherjee, A.* and Mathew, B. (2021). You too Brutus! Trapping Hateful Users in Social Media: Challenges, Solutions and Insights. In *The Hypertext 2021*, Virtually (online mode). (Ted Nelson best newcomer paper award).
- Bansal, S., Garimella, V., Suhane, A. and *Mukherjee*, A. (2021). Debiasing Multilingual Word Embeddings: A Case Study of Three IndianLanguages. In *Hypertext* 2021, Virtually (online mode).
- 27. Dash, A., Chakraborty, A., Ghosh, S., *Mukherjee, A.* and Gummadi, K. P. (2021). When the Umpire is also a Player: Bias in Private Label Product Recommendations on E-commerce Marketplaces. In *ACM FAccT 2021*, Virtually (online mode).
- Chowdhury, A., Srinivasan, S., Bhowmick, S., Mukherjee, A., Ghosh, K. (2021). Constant Community Identification in Million Scale Networks Using Image Thresholding Algorithms, In ASONAM (21), (short paper), Virtually (online mode).
- Hazra, R., Aggarwal, H., Goyal, P., *Mukherjee, A.* and Chakrabarti, S. (2021). Joint Autoregressive and Graph Models for Software and Developer Social Networks. In *ECIR 2021*, Virtually (online mode).[CORE RANK: A]
- Mathew, B., Illendula, A., Saha, P., Sarkar, S., Goyal, P. and *Mukherjee*, A. (2020). Hate begets Hate: A Temporal Study of Hate Speech. *Proceedings of the ACM* on Human-Computer Interaction, (presented in ACM CSCW 2020). 4(2), 1--24. [IF: 4.42]
- Reddy, B. P., Seelaboyina, S. B., Sarkar, S. and *Mukher-jee, A.* (2020). NwQM: A neural quality assessment framework for Wikipedia. In *EMNLP 2020*, Virtually (online mode). [CORE RANK: A]
- 32. Aluru, S. S., Mathew, B., Saha, P. and Mukherjee,

A. (2020). A Deep Dive into Multilingual Hate Speech Classification. In *ECML-PKDD 2020*, Ghent Belgium. [CORE RANK: A]

- 33. Atharva Vyas, Heer Ambavi, Sayantan Adak, Shivam Patel, Pritam Kadasi, Mayank Singh and Animesh Mukherjee (2020). Gandhipedia: A one-stop AI-enabled portal for browsing Gandhian literature, life-events and his social network. In *JCDL 2020* (demo track), Xi'an, China. [CORE RANK: A\*]
- 34. Bansal, S., Garimella, V., Suhane, A., Patro, J. and *Mukherjee, A.* (2020). Code-switching patterns can be an effective route to improve performance of downstream NLP applications: A case study of humour, sarcasm and hate speech detection. In *ACL 2020* (short paper), Seattle, Washington. [CORE RANK: A\*]
- Chakraborty, S., Goyal, P. and *Mukherjee*, A. (2020).
   Aspect-based Sentiment Analysis of Scientific Reviews. In *JCDL 2020*, Xi'an, China. [CORE RANK: A\*]
- 36. Hazra, R., Aryan, Aggarwal, H., Marsili, M. and *Mukherjee*, A. (2020). Characterising authors on the extent of their paper acceptance: A case study of the Journal of High Energy Physics, In *JCDL 2020*, Xi'an, China. [CORE RANK: A\*]
- Jalal, J., Singh, M., Pal, A., Dey, L. and *Mukherjee*, A. (2020). Identification, Tracking and Impact: Understanding the trade secret of catchphrases. In *JCDL 2020*, Xi'an, China. [CORE RANK: A\*]
- Mathew, B., Kumar, N., Goyal, P. and *Mukherjee, A*. (2020). Interaction dynamics between hate and counter users on Twitter. In *CoDS-COMAD (20)*, (research track), Hyderabad, India.
- Mathew, B., Maity, S. K., Goyal, P. and *Mukherjee, A*. (2020). Competing Topic Naming Conventions in Quora: Predicting Appropriate Topic Merges and Winning Topics from Millions of Topic Pairs. In *CoDS-COMAD (20)*, (research track), Hyderabad, India.
- 40. Singh, M., Pal, A., Dey, L. and *Mukherjee, A.* (2020). Innovation and Revenue: Deep Diving into the Temporal Rank-shifts of Fortune 500 Companies. In *CoDS-COMAD* (20), (industry track), Hyderabad, India.
- 41. Patro, J., Bansal, S. and *Mukherjee*, A. (2019). A deep-

learning framework to detect sarcasm targets. In *EMNLP* (19), (short paper), Hong Kong. [CORE RANK: A]

- Hazra, R., Singh, M., Goyal, P., Adhikari, B. and *Mukherjee, A.* (2019). The rise and rise of interdisciplinary research: Understanding the interaction dynamics of three major fields -- Physics, Mathematics & Computer Science. In *ICADL (19)*, Kuala Lumpur, Malayasia. [CORE RANK: A]
- Mathew, B., Dutt, R., Maity, S. K., Goyal, P. and *Mukherjee, A.* (2019). Deep Dive into Anonymity: Large Scale Analysis of Quora Questions. In *SocInfo* (19), Doha, Qatar.
- Patro, J., Baruah, S., Gupta, V., Choudhury, M., Goyal, P. and *Mukherjee*, A. (2019). Characterizing the spread of exaggerated health news content over social media. In ACM Hypertext and Social Media (19), (poster paper), Hof, Germany. [CORE RANK: A]
- Jana, A., Puzyrev, D., Panchenko, A., Goyal, P., Biemann, C. and *Mukherjee*, A. (2019). On the Compositionality Prediction of Noun Phrases using Poincaré embeddings. In ACL (19), Florence, Italy. [CORE RANK: A\*]
- Sarkar, S., Reddy, B. P., Sikdar, S. and *Mukherjee*, A. (2019). StRE: Self Attentive Edit Quality Prediction in Wikipedia. In ACL (19), Florence, Italy. [CORE RANK: A\*]
- 47. Matthew, B., Dutt, R., Goyal, P. and *Mukherjee, A*. (2019). Spread of hate speech in online social media. In *ACM WebSci (19)*, Boston, USA. (Best Paper, Honourable Mention Award).
- Patro, J., Choudhary, N., Chittora, K. and *Mukherjee*, A. (2019). A deep learning approach to detect emotions in the dialog utterances. In *SemEval (19)*, (poster paper), Minneapolis, USA.
- Matthew, B., Saha, P., Tharad, H., Rajgaria, S., Singhania, P., Maity, S. K., Goyal P. and *Mukherjee, A.* (2019). Thou shalt not hate: Countering online hate speech. In *ICWSM (19)*, Munich, Germany.
- Singh, M., Sarkar, R., Vyas, A., Goyal, P., *Mukherjee*,
   A. and Chakrabarti, S. (2019). Automated Early Leaderboard Generation From Comparative Tables. In *ECIR*

(19), Cologne, Germany. [CORE RANK: A]

- 51. Maity, S.K., Panigrahi, A., Ghosh, S., Banerjee, A., Goyal, P. and *Mukherjee*, A.. (2019). DeepTagRec: A Contentcum-User based Tag Recommendation Framework for Stack Overflow. In *ECIR (19)*, (short paper), Cologne, Germany. [CORE RANK: A]
- Dash, A., *Mukherjee, A.* and Ghosh, S. (2019). A Network-centric Framework for Auditing Recommendation Systems. In *IEEE Infocom (19)*, Paris, France. (Best In-session Presentation Award). [CORE RANK: A\*]
- 53. Jana, A., *Mukherjee, A.* and Goyal. P. (2019). Detecting Reliable Novel Word Senses: A Network-Centric Approach. In ACM SAC (19) -- Knowledge and Language Processing track, Limassol, Cyprus.
- Maity, S. K., Chaudhuri, A. and *Mukherjee, A.* (2019).
   "Woman-Metal-White vs Man-Dress-Shorts": Combining Social, Temporal and Image Signals to Understand Popularity of Pinterest Fashion Boards. In *ICWSM (19)*, Munich, Germany.
- Santosh, T. Y. S. S., Gambhir, V. and *Mukherjee, A*. (2018). Deep learning for social media health text classification. In *Social Media Mining for Health Applications* (SMM4H) Workshop & Shared Task, EMNLP(18), Brussels, Belgium.
- Maity, S. K., Chakraborty, A., Goyal, P. and *Mukherjee*,
   A. (2018). Opinion Conflicts: An Effective Route to Detect Incivility in Twitter. In *CSCW (18)*, New York City's Hudson River. [CORE RANK: A]
- 57. Sarkar, S., Bhowmick, S. and *Mukherjee*, A. (2018).
  On Rich Clubs of Path-Based Centralities in Networks. In CIKM (18), Lingotto, Turin, Italy. [CORE RANK: A]
- Sarkar, S., Bhagwat, A. and *Mukherjee, A.* (2018). Core2Vec: A core-preserving feature learning framework for networks. In *IEEE/ACM ASONAM(18)*, Barcelona, Spain. (short paper)
- Joshi, T., *Mukherjee, A.* and Ippadi, G. (2018). One size does not fit all: Predicting product returns in e-commerce platforms In *IEEE/ACM ASONAM(18)*, Barcelona, Spain. (poster)

- Jana, A., Kanojiya, P., Goyal, P., and *Mukherjee, A*. (2018). WikiRef: Wikilinks as a route to recommending appropriate references for scientific Wikipedia pages. In *COLING (18)*, Santa Fe, New Mexico, USA. [CORE RANK: A]
- Maity, S. K., Mullick, A., Ghosh, S., Kumar, A., Dhamnani, S., Bahety, S., and *Mukherjee*, A. (2018). Understanding Psycholinguistic Behavior of Predominant Drunk Texters in Social Media. In *IEEE ISCC Work*shops - *ICTS4eHealth (18)*, Natal, Brazil.(BEST PA-PER AWARD)
- Singh, M., Dogga, P., Patro, S., Barnwal, D., Dutt, R., Haldar, R., Goyal, P. and *Mukherjee, A.* (2018). *CL Scholar*: The ACL Anthology Knowledge Graph Miner. In *NAACL (18) demo track*, New Orleans, Louisiana. [CORE RANK: A]
- Sikdar, S., Chakraborty T., Sarkar, S., Ganguly, N. and *Mukherjee, A.* (2018). ComPAS: Community Preserving Sampling for Streaming Graphs. In *AAMAS (18)*, Stockholm, Sweden. [CORE RANK: A\*]
- Maity, S. K., Gajula, R. and *Mukherjee, A.* (2018). Why Did They #Unfollow Me? Early Detection of Follower Loss on Twitter. In *ACM GROUP (18)*, (poster highlight), Florida, USA.
- Maity, S. K., Kumar, A., Choudhary, V., Mallick, A., and *Mukherjee, A.* (2018). Understanding Book Popularity on Goodreads. In *ACM GROUP (18)*, (poster highlight), Florida, USA.
- 66. Patro, J., Samanta, B., Singh, S., Basu, A., Mukherjee, P., Choudhury, M., *Mukherjee*, A. (2017). All that is English may be Hindi: Enhancing language identification through automatic ranking of the likeliness of word borrowing in social media. In *EMNLP (17)*, Copenhagen, Denmark. [CORE RANK: A]
- Singh, M., Sarkar, R., Goyal, P., *Mukherjee, A.* and Chakrabarti, S. (2017). Relay-Linking Models for Prominence and Obsolescence in Evolving Networks. In *ACM SIGKDD* (17), Halifax, Canada. [CORE RANK: A\*]
- Maity, S. K., Panigrahi, A., and *Mukherjee, A.* (2017). Book Reading Behavior on Goodreads Can Predict the Amazon Best Sellers. In *ACM/IEEE ASONAM (17)*, (short paper), Sydney, Australia.

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- Mukherjee, A., Choudhury, M., Ganguly, N. and Basu, A. (2013). Language Dynamics in the Framework of Complex Networks: A Case Study on Self-organization of the Consonant Inventories. In Cognitive Aspects of Computational Language Acquisition, Poibeau, T., Villavicencio, A., Korhonen, A. and Alishahi, A. (eds.), Springer, 51--78, ISBN 978-3-642-31863-4.
- 57. Choudhury, M., and *Mukherjee, A.* (2009). The Structure and Dynamics of Linguistic Networks. In *Dynamics* on and of Complex Networks: Applications to Biology, Computer Science, Economics, and the Social Sciences, Ganguly, N., Deutsch, A., and Mukherjee, A., (eds.),

Birkhauser, Springer, Boston, 145--166, ISBN: 978-0-8176-4750-6.

# **Book chapters:**

- Maity, S. K., Panigrahi, A., and *Mukherjee, A.* (2018). Analyzing Social Book Reading Behavior on Goodreads and how it predicts Amazon Best Sellers. In *Influence and Behavior Analysis in Social Networks and Social Media* (*LNSN*), Kaya, M. and Alhajj R. (eds.), Springer, ISBN: 978-3-030-02592-2.
- Sarkar, S., Kumar, S., Bhowmick, S. and *Mukherjee, A*. (2018). Centrality and Community Scoring Functions in Incomplete Networks: Their Sensitivity, Robustness, and Reliability. In *Machine Learning Techniques for Online Social Networks*, Ozyer T. and Alhajj R. (eds.), Springer, 135--154, ISBN: 978-3-319-89931-2.
- Mukherjee, A., Choudhury, M., Ganguly, N. and Basu, A. (2013). Language Dynamics in the Framework of Complex Networks: A Case Study on Self-organization of the Consonant Inventories. In Cognitive Aspects of Computational Language Acquisition, Poibeau, T., Villavicencio, A., Korhonen, A. and Alishahi, A. (eds.), Springer, 51--78, ISBN 978-3-642-31863-4.
- Choudhury, M., and *Mukherjee, A.* (2009). The Structure and Dynamics of Linguistic Networks. In *Dynamics on and of Complex Networks: Applications to Biology, Computer Science, Economics, and the Social Sciences,* Ganguly, N., Deutsch, A., and Mukherjee, A., (eds.), Birkhauser, Springer, Boston, 145--166, ISBN: 978-0-8176-4750-6.
- Statement regarding collaboration with scientists abroad and India.
  - Matteo Marsili, ICTP, Trieste, Italy: This collaboration started with the award of Simons Associateship to Animesh in 2014. Since then Animesh has been actively collaborating with Dr. Marsili on various research problems pertaining to (i) evaluation of data clustering algorithms for high dimensional data (ii) large-scale analysis of peer review systems. The collaboration has also got further extended to the Media Lab researchers at SISSA who have generously provided various datasets to run the experiments. The PhD student involved in this project received the prestigious STEP fellowship to visit ICTP in 2015 and 2016 to continue this research. The

collaboration has resulted in many papers in top venues – CIKM'16 and JCDL'17 (the work received a best paper nomination), JCDL'20 and PLoS ONE.

- Krishna Gummadi, MPI-SWS, Germany: This collaboration started in 2018 and centers around building fair and ethical machine learning algorithms. The main focus is to mitigate exposure bias in two sided recommendation systems. Many items on various online portals get undue exposure by virtue of their special relationships with the platform. In our first work we audited the Amazon recommendation algorithm establishing the undue exposure to private label products (FAccT'21). In a followup work in WebConf'22 we demonstrate the unfairness issues in voice-assisted shopping with smart devices like Alexa.
- Chris Biemann, University of Hamburg, Germany: This collaboration formally started with a DAAD-IIT faculty exchange program jointly awarded to Animesh and Dr. Biemann in 2013. The two have been closely collaborating on automatic detection of word sense changes from time-stamped corpora. The collaboration has led to the success of a DST-DAAD joint project proposal and two top-tier publications – ACL 2014 and JNLE 2015. Recently, Animesh and Dr. Biemann has started work on co-hyponymy detection in natural language text and their evolution over time. Animesh has been awarded the prestigious Humboldt Fellowship for Experienced Researchers to continue this new thread of collaboration with Dr. Biemann at the University of Hamburg. As an outcome of this fellowship two papers in top CS forums have come out recently -- ACL'19 and AAAI'21.
- Sanjukta Bhowmick, University of North Texas: Dr. Bhowmick and Animesh have been consistently collaborating for more than five years now. This collaboration has, to its credit, top-notch publications like Nature Scientific Reports, ACM SIGKDD, ACM CIKM, ACM TKDD, IEEE TKDE, ASONAM. The collaboration has also resulted in the production of an excellent quality PhD thesis of Dr. Tanmoy Chakraborty. The thesis has attracted many notable awards like the INAE Best Dissertation Award, XRCI Best Dissertation Award etc. Both the collaborators have been actively working on noisy incomplete network analysis and stability of networks for the past publishing in ASONAM'16 and CIKM'16, ECML-PKDD Journal track'18, CIKM'18, ASONAM'21.

- Scott Hale, University of Oxford: This collaboration has recently started with an objective to set up a consortium of researchers working on misinformation, hate speech and online toxicity. There are multiple teams contributing to the consortium through the aegis of Meedan, a not-for-profit global technology that develops open source tools for online fact-checking. A lot of data and software are being developed and shared across a wide array of researchers globally through the consortium.
  - Tyll Krueger, Wroclaw University of Science and Technology, Poland: This collaboration started with the visit of Dr. Krueger to IIT Kharagpur in 2012. Animesh and Dr. Krueger have jointly studied various theoretical aspects pertaining to (i) evolution and (ii) diffusion in large networks. The two researchers have jointly come up with new ideas of segmented message diffusion and growth of threshold random graphs. This work resulted in a successful Indo-Polish bilateral researcher exchange project supported by the governments of both the countries. Various PhD students from both the groups have been working on these problems resulting in publications in leading physics and computer science journals including Physical Review E, Europhysics Letters, IEEE JSAC.
- Vittorio Loreto, Sapienza University, Rome: Animesh has been collaborating with Dr. Loreto since 2009 while he was in the group of Dr. Loreto as a post-doctoral researcher in ISI Foundation, Italy. They have been working on various issues related to human language dynamics with a special focus on emergence of naming and categorization in linguistic communities. This research has resulted in the development of a computational basis to the emergence of hierarchy in color naming patterns. A successful Indo-Italian bilateral researcher exchange project supported by both the governments has resulted from this project. Many significant publications including PNAS, PLoS One, Europhysics Letters, Journal of Statistical Mechanics have come out of this collaboration.
- Soumen Chakrabarti, IIT Bombay: This collaboration started in 2016 to jointly study the dynamics of scientific citations. Animesh and Prof. Chakrabarti have together designed a new model of citation growth that is able to explain both entrenchment as well as obsolescence in a single model of evolution of citation network. Earlier models would mostly explain obsolescence by fitting

exponential functions with either global parameters or per-node parameters. However, they could not explain where the diverted attention would go in the network when a certain paper is undergoing obsolescence. In this work, Dr. Chakrabarti and Animesh show the evidence of "relaying" of citations from older papers to newer papers, i.e., how younger papers would "steal" citations from their older neighbors undergoing obsolescence. This appeared in KDD'17, which is the premium conference in knowledge discovery and data mining. As a follow up the duo have published multiple papers in ECIR'19, ECIR'21, Journal of Infometrics etc. In a recent collaboration, this team released in their CoNLL'21 paper a dataset of 21k entity-relation tagged sentences in three Indian languages and English. I believe this is a very productive outcome of the collaboration and would advance NLP research in Indian languages to a large extent.

- Monojit Choudhury, Microsoft Research Lab, India: Dr. Choudhury and Animesh have been collaborating since 2006 while both of them were still PhD students. They have together significantly contributed to the literature of language evolution and change with publications in top-tier CS conferences like ACL, COLING, EACL and top physics journals like Physical Review E, Advances in Complex Systems, Europhysics Letters and Physcia A. In EMNLP'17 they performed a study on automatic identification of word borrowings.
- Lipika Dey, TCS Innovation Labs, Kolkata: Recently, Animesh's continuous efforts in citation analysis got noted by one of the major Indian tech giants Tata Consultancy Services. Consequently the company has engaged into active research collaboration with Animesh and his scholars. The team is actively collaborating on (i) analysis of patent citations and the growth of industry leaders, (ii) concept mining from citation networks for enhanced future co-authorship prediction and (iii) stress detection from Reddit posts during pandemic times. Some of the works out of this collaboration have been published in JCDL'17 and JCDL'20 respectively.
- Kiran Garimella, Rutgers University, USA: This collaboration started in 2019 and has since then continued to study fear speech in Indian WhatsApp groups. The work recently got accepted in The WebConf'21 (erstwhile WWW) with a very positive review. The team is cur-

rently working on the interaction of religious and political ideologies in Indian WhataApp groups.

- Details of books published, if any:
  - Biswas, S., *Mukherjee, A.*, Chan, M. C., Chakraborty, S., Kumar, A., Mandyam, G., and Shorey, R. (eds.) (2018). *Communication Systems and Networks*, Springer, ISBN: 978-3-030-10658-4.
  - Mukherjee, A., Choudhury, M., Peruani, F., Ganguly, N., and Mitra, B. (eds.) (2013). Dynamics on and of Complex Networks Volume 2: Applications to Timevarying Dynamical Systems, Birkhauser, Springer, Boston, ISBN: 978-1-4614-6728-1.
  - Mukherjee, A., Choudhury, M., Hassan, S., and Muresan, S. (eds.) (2011). Editorial: Network Models for Cognitive and Social Dynamics of Language, Computer Speech and Language, 25(3), 635--638. The articles in this issue can be found here: Computer Speech and Language, Volume 25, Issue 3 under the head "special issue papers".
  - Ganguly, N., Deutsch, A., and Mukherjee, A. (eds.) (2009). Dynamics on and of Complex Networks: Applications to Biology, Computer Science, Economics, and the Social Sciences, Birkhauser, Springer, Boston, ISBN: 978-0-8176-4750-6 http://www.springer.com/birkhauser/computer+science/book/978-0-8176-4750-6
- Any additional information of relevance:
  - (a) Number of PhD students graduated: 7
  - (b) Placements of graduated PhD students: IIT Delhi (Associate Professor), IIT Gandhinagar (Assistant Professor), MIT (Post-doc), RWTH Aachen (Post-doc), TU Darmstadt (Post-doc), IISER Bhopal (Assistant Professor).
  - (c) Award and accolades of PhD students: Google PhD fellowship, Microsoft Research PhD Fellowship, TCS Research PhD fellowship (3 times), PMRF (3 times), INAE & XRCI doctoral dissertation award, Ramanujan fellowship, SERB Early Career Researcher award, participation in Heidelberg Laureate forum (multiple times) etc.
  - (d) Paper cuttings of PhD thesis review reports.



- (e) Sponsored projects
  - Project name: Leveraging Bipartite Networks to Investigate the Dynamical Properties of Socio-technical Systems. Agency: Samsung GRO. (This grant was received through a world-wide highly competitive competition). Budget: ~USD 70K. Status: Ongoing.
  - Project name: New perspectives for computational social science. Agency: Exchange of Researchers within the frame of the Executive Program of Scientific and Technological Cooperation, between the Republic of India and the Italian Republic. (This project was in continuation of Animesh's post-doctoral research with Prof. Vittorio Loreto. One of the remarkable achievements of the work is the joint paper in the Proceedings of the National Academy of Sciences, USA). Budget: ~USD 7K. Status: Completed (2012 – 2014).
  - Project name: ICT for computational social science. Agency: Fast Track Scheme for Young Scientists, Department of Science & Technology, Government of India. (As a part of this project Animesh developed various web experiments to study the dynamics of human languages.) Budget: ~USD 21K. Status: Completed (2012 - 2014).
  - Project name: Post-disaster situation analysis and resource management using delay-tolerant peer-to-peer wireless networks. Agency: ITRA, DIT. (This project was obtained through a very competitive selection process. It was a collaborative effort of six institutions including IIT Kharagpur, IIM Kolkata, IIEST Shibpur, NIT Durgapur, Kalyani Government Engg. College and Heritage Institute of Technology. This project was massively appreciated because of its direct relevance to various government initiatives. Budget: ~USD 138K. Status: Completed (2013 - 2018).
  - Project name: Data driven approaches for inferring

opinion dynamics on social networks. Agency: Indo-Polish bilateral exchange, DST, India. Budget: ~USD 20K. Status: Completed (2015 - 2017).

- Project name: Large-scale text analytics to identify temporal and media specific scopes of words. Agency: DST-DAAD PPP. Budget: ~USD 20K. Status: Completed (2017-2019).
- Project name: Permanence and community structure analysis. Agency: Microsoft Research India. Budget: ~USD 4K (unrestricted gift). Status: Ongoing.
- Project name: Algorithms for computational social science. Agency: Yahoo! Labs India. Budget: ~USD 2.5K (unrestricted gift). Status: Ongoing.
- Project name: Social recommendation in e-commerce.
   Agency: Flipkart. Budget: ~USD 7.5K + 5K + 2K (unrestricted gift three times). Status: Ongoing.
- Project name: Exaggeration identification in science news. Agency: Adobe Research. Budget: ~USD 25K (unrestricted gift). Status: Ongoing.
- Project name: Targeted bias in Indian media outlets.
   Agency: Facebook Research. Budget: ~USD 30K (unrestricted gift). Status: Ongoing.
- Project name: Behavioral modeling in multi-sensor environments. Agency: TCS Innovation Labs. Budget: ~USD 100K (unrestricted gift). Status: Ongoing.
- Project name: Gandhipedia, an one-stop AI enabled portal for searching Gandhian literature. Agency: Ministry of Culture, GoI. Budget: ~USD 697K. Status: Ongoing
- (f) Media attention
  - The 2012 PNAS paper: PNAS Press Highlights, Scientific American, Live Science, MedicalXpress, The Hindu, Business Line, Times of News, BBC Future, Prospect Magazine (UK), Yahoo! News, Deccan Herald, MSN, Homunculus, Doctordisruption, Galileo Net, Scienza e Tecnica, Chinese EurekAlert, De Standaard, Design by Coffee, Blitz quotidiano, Wired (Italian). This work now has a Wikipedia entry in the page for Color term.
  - The TKDD 2016 paper: Included in ACM's 21<sup>st</sup> Annual Best of Computing.

- The CSCW 2016 paper: Received the best paper honorable mention, was included in MIT Tech Review best of arXiv.
- The HICSS 2016 paper: Included in the MIT Tech Review best of arXiv.
- The work on disaster management covered by Business Standard and Financial Express.
- Work on product returns with Flipkart featured in Economic Times.
- The JCDL 2017 work on analysis of scientific peer review system received a best paper nomination.
- The ASONAM 2013 paper on dynamics of popularity of CS fields received a best paper nomination.
- The work on analyzing book reading behavior got covered in TechXplore, geek.com and phys.org.
- The work on incivility detection got covered in TechXplore.
- The work on hate mining and misogyny detection was included in the MIT Tech Review best of arXiv.
- WebSci 2019 paper received the best paper honorable mention.
- SocInfo 2019 paper got the best paper nomination.
- Work on targeted media bias with Facebook got covered in Financial Times, Hindustan Times, Business Standard, NDTV etc.
- Work on Gandhipedia received huge media coverage -The Hindu BusinessLine, The Hindu, Careers360, The Week, India Today (Web), India Today, Deccan herald, News18, Hindustan Times, Indian Express, NDTV, Jagran, IndiaTV, OrissaPost, Business Standard, The Statesman Financial Express.
- Work on explainable hate speech covered in technology.org and newshive.
- Work on Wikipedia article category prediction featured in the Wikimedia newsletter in the November 2020 issue.
- Work on fear speech got covered in The Wire (India).
- Hypertext 2020 paper receives the Ted Nelson best newcomer paper (cash prize: USD 1K)

- (g) Screenshots of important technologies developed:
  - Gandhipedia (video demonstration: https://tinyurl. com/yy3b5e9p)

 $Launching \ screen.$ 



Temporal co-mention network



Example search result when a node in the co-mention network is clicked.



Dynamic timeline of letters written by Mahatma Gandhi to important personalities.



- OCR++ Tool (scientific information extraction) -- COLING'16, GYTI 2017 Appreciation.



- FeRoSA Tool (scientific article search) -- PAKDD'16



 SweepSticks tool (Virtual mouse for patients with neuro-motor disorder, e.g., cerebral palsy) - ReSNA, 20(2), 2008, Young Scientist Award 2006

# The launch screen.



 $The \ simulation \ of \ mouse \ sweeping \ on \ the \ desktop \ The \ hardware \ switches.$ 



The hardware switches to control Sweepsticks.

