SOMNATH BASU ROY CHOWDHURY

Residential Information
Carrboro, NC
Chapel Hill 27514, US.

Electronic Information
Web: cs.unc.edu/~somnath/
Email: somnath@cs.unc.edu

Research Interests

Fairness, Incremental/Online Learning, and Representation Learning.

Education

University of North Carolina (UNC) at Chapel Hill   Jan 2021 - present
Ph.D. in Computer Science
Advisor: Prof. Snigdha Chaturvedi

Indian Institute of Technology (IIT) - Kharagpur, India   2013 - 2018
B.Tech. & M.Tech. (Dual Degree Hons.) in Electrical Engineering   Rank - 3/31
Minor in Computer Science & Engineering (CSE)
Micro-specialization in Embedded Wireless Systems (EWS)
Advisor: Prof. Jayanta Mukhopadhyay

Industry Experience

Google Research, Mountain View   May 2023 - Aug 2023
Student Researcher, Algorithms & Optimization team
Collaborators: A. Dubey, N. Monath, A. Beirami, R. Kidambi

Google Research, Mountain View   May 2022 - Dec 2022
Student Researcher, Algorithms & Optimization team
Collaborators: A. Dubey, K. Choromanski, N. Monath

Microsoft Corp., India   Jul 2019 - Dec 2020
Data Scientist II, Satori Knowledge Graph (Bing team)

Apple Inc., India   Jun 2018 - Jul 2019
Software Engineer, Identity Management Services (IdMS).

Publications

Google Scholar: xGbyrIUAAAAJ.

Working Papers:

[20] **Incremental Extractive Opinion Summarization Using Cover Trees**
S. Basu Roy Chowdhury, N. Monath, A. Dubey, M. Zaheer, A. McCallum, A. Ahmed, and S. Chaturvedi
(*Under review*) [pdf]

Conference and Journal papers:

[19] **Enhancing Group Fairness in Online Settings Using Oblique Decision Forests**
S. Basu Roy Chowdhury, N. Monath, A. Beirami, R. Kidambi, A. Dubey, A. Ahmed, and S. Chaturvedi
Proceedings of ICLR 2024 (*Spotlight*). [pdf]

[18] **Robust Concept Erasure via Kernelized Rate Distortion Maximization**
S. Basu Roy Chowdhury, N. Monath, A. Dubey, A. Ahmed, and S. Chaturvedi
Proceedings of NeurIPS 2023. [pdf]

[17] **Unsupervised Opinion Summarization Using Approximate Geodesics**
S. Basu Roy Chowdhury, N. Monath, A. Dubey, A. Ahmed, and S. Chaturvedi
Proceedings of EMNLP Findings 2023 (New Frontiers in Summarization Workshop). [pdf]

[16] **Aspect-Aware Unsupervised Extractive Opinion Summarization**
H. Li, S. Basu Roy Chowdhury, and S. Chaturvedi
Proceedings of ACL Findings 2023. [pdf]

[15] **Efficient Graph Field Integrators Meet Point Clouds**
K. Choromanski*, A. Sehanobish*, H. Lin*, Y. Zhao*, E. Berger, A. Pan, T. Parshakova, D. Watkins, T. Zhang, V. Likhosherstov, S. Basu Roy Chowdhury, A. Dubey, D. Jain, T. Sarlos, S. Chaturvedi, A. Weller
Proceedings of ICML 2023. [pdf]

[14] **Sustaining Fairness via Incremental Learning**
S. Basu Roy Chowdhury and S. Chaturvedi
Proceedings of AAAI 2023 (*Oral*). [pdf]

[13] **Learning Fair Representations via Rate-Distortion Maximization**
S. Basu Roy Chowdhury and S. Chaturvedi
Proceedings of TACL (*Oral* at EMNLP 2022). [pdf] [MIT Press]

[12] **Unsupervised Extractive Opinion Summarization Using Sparse Coding**
S. Basu Roy Chowdhury, C. Zhao, and S. Chaturvedi
Proceedings of ACL 2022. [pdf]

[11] **Read Top News First: A Document Reordering Approach for Multi-document News Summarization**
C. Zhao*, T. Huang*, S. Basu Roy Chowdhury, M. Chandrasekaran, K. McKeown, and S. Chaturvedi
Proceedings of ACL Findings 2022 (*short*). [pdf]

[10] **Adversarial Scrubbing of Demographic Information for Text Classification**
S. Basu Roy Chowdhury, S. Ghosh, Y. Li, J. Oliva, S. Srivastava and S. Chaturvedi
Proceedings of EMNLP 2021. [pdf]

[9] **Is Everything in Order? A Simple Way to Order Sentences**
S. Basu Roy Chowdhury*, F. Brahman* and S. Chaturvedi
Proceedings of EMNLP 2021. [pdf]

[8] **Learning beyond datasets: Knowledge Graph Augmented neural networks for NLP**
K.M. Annervaz*, S. Basu Roy Chowdhury*, and A. Dukkipati
Proceedings of NAACL 2018 (*Oral*). [pdf]

Other refereed publications:

[7] **Does Commonsense help in detecting Sarcasm?**
S. Basu Roy Chowdhury and S. Chaturvedi
Proceedings of Insights from Negative Results in NLP workshop, EMNLP 2021. [pdf]

[6] **Towards efficient data normalization using grammar-based parsing**
S. Basu Roy Chowdhury, A. Mishra, and A. Banerjee
Proceedings of Microsoft Journal of Applied Research, MSJAR 2020. [pdf]

[5] **Instance-based Inductive Deep Transfer Learning by Cross-Dataset Querying with LSH**
S. Basu Roy Chowdhury, K.M. Annervaz, and A. Dukkipati.
Proceedings of DeepLo Workshop, EMNLP 2019. [pdf]

[4] **AdGAP: Advanced Global Average Pooling**
A. Ghosh, B. Bhattacharya*, and S. Basu Roy Chowdhury*
Proceedings of Student Abstract and Poster Program, AAAI 2018. [pdf]

[3] **Training Autoencoders in Sparse Domain**
B. Bhattacharya, A. Ghosh*, and S. Basu Roy Chowdhury*
Proceedings of Student Abstract and Poster Program, AAAI 2018. [pdf]

[2] **Handwriting Profiling using Generative Adversarial Networks**
A. Ghosh*, B. Bhattacharya*, and S. Basu Roy Chowdhury*
Proceedings of Student Abstract and Poster Program, AAAI 2017. [pdf]

[1] **SAD-GAN: Synthetic Autonomous Driving using Generative Adversarial Networks**
A. Ghosh*, B. Bhattacharya*, and S. Basu Roy Chowdhury*
Proceedings of DLAI Workshop, NeurIPS 2016. [pdf]

(* = equal contribution)

Theses:
[1] **Lung Cancer segmentation in 3D CBCT Images**
Advisor: Prof. Jayanta Mukhopadhyay
M.Tech. Thesis, IIT Kharagpur [pdf]

Research Experience

Statistics and Machine Learning Group, IISc   (May 2017 - Apr 2018)
Research Intern, Topic: Low Resource NLP
Advisor: Prof. Ambedkar Dukkipati

Accenture Technologies Lab (ATL)   (May 2017 - Jul 2017)
Research Intern, Topic: Knowledge graph enhanced NLP
Advisor: K. M. Annervaz (ATL), Prof. Ambedkar Dukkipati, (IISc)

Visual Information Processing Lab - IIT Kharagpur   (Jul 2016 - May 2018)
Undergraduate Researcher, Topic: Lung Cancer Segmentation in 3D CBCT
Advisor: Prof. Jayanta Mukhopadhyay

National Brain Research Centre - Gurgaon, India   (May 2015 - Jul 2015)
IAS Summer Fellow, Topic: Image Processing in MRI scans
Advisor: Prof. Pravat Mandal

Talks

'Concept Manipulation in Deep Learning Models', Jane Street, New York	(Apr 2023)
'Learning Fair Representations For Equitable ML', IVLC Seminar, UNC CH	(Jan 2023)
'Adversarial Debiasing in NLP', NLP Course, UNC CH	(Apr 2022)
'Probabilistically grounded word embeddings', Bing paper reading forum, *Microsoft*	(Nov 2019)
'Secure Machine Learning', *Apple India Research Forum*	(Apr 2019)

Professional Service/ Teaching

- **Program Committee Member/ Reviewer**
  ICLR (2024), NeurIPS (2023), ACL (2022-2023), ARR (2021-2023), EMNLP (2021-2023), LREC-COLING (2024), NAACL (2024), AAAI (2023-2024), ICRA (2024)
  Narrative Understanding Workshop, NAACL (2021-2022)
  2nd workshop on Insights from Negative Results in NLP, EMNLP (2021)

- *Teaching Assistant*
(EE21101) Signals and Networks Lab, IIT Kharagpur	2018
(EE19001) Electrical Technology Lab, IIT Kharagpur	2017

Academic Achievements

- Student Volunteer Award, ACL 2022 (*declined*) 2022
- Travel Award from GPSG, UNC Chapel Hill for EMNLP 2021 (*declined*) 2021
- All India Rank 7 (EECS) - Nationwide Education & Scholarship Test (NEST - II). 2017
- ACM-ICPC Asia-Chennai Regionals - Rank 33/1100 2015
- IAS Summer Research Fellowship - National Brain Research Center 2015
- INSPIRE Scholarship - Top 1 percentile in ISC (Grade 12). 2013
- Top ranks - JEE (Mains, Advanced): 99+ percentile, Top 1% in ISCE & ISC 2013

Miscellaneous Activities

- *Winner* of the WaterAid Marathon Hyderabad - 5km category 2019
- *Best Innovation Award* - Apple EMEIA Hackathon 2018
- *Special Mention in Technology GC* - Graduating batch LBS Hall. 2018
- *Silver-medal* winning Data Analytics team - Inter-hostel GC 2017
- *Gold-medal* winning Hardware Modeling team- Inter-hostel GC 2015
- 5th year distinction in *Fine Arts* and Painting - All India Art and Crafts Society 2010