

# SOMNATH BASU ROY CHOWDHURY

## Residential Information

Carrboro, NC  
Chapel Hill 27514, US.

## Electronic Information

Web: [cs.unc.edu/~somnath/](http://cs.unc.edu/~somnath/)  
Email: [somnath@cs.unc.edu](mailto:somnath@cs.unc.edu)

## Research Interests

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Responsible AI, Efficient ML, Incremental/Online Learning, and Representation Learning.

## Education

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### University of North Carolina (UNC) at Chapel Hill

Jan 2021 - present

Ph.D. in Computer Science

Advisor: Prof. [Snigdha Chaturvedi](#)

Thesis Committee: [M. Bansal](#), [G. Bertasius](#), [H. He](#), [A. McCallum](#)

### 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

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### 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

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Google Scholar: [xGbyrIUAAAAJ](#).

### Working Papers:

- [21] **Embodied AI with Two Arms: Zero-Shot Learning, Safety, and Modularity**  
J. Varley\*, S. Singh\*, D. Jain\*, K. Choromanski\*, A. Zeng, S. Basu Roy Chowdhury, A. Dubey, V. Singh  
(Under review) [\[pdf\]](#)

### Conference and Journal 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  
*Proceedings of TMLR 2024*. [\[pdf\]](#)
- [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. Likhoshesterov, 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. Dukkupati  
*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. Dukkupati.  
*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

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- 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

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- ‘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

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- **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), COLM (2024)  
[Narrative Understanding Workshop](#), NAACL (2021-2022)  
2<sup>nd</sup> 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

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- 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**

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- *Winner* of the WaterAid Marathon Hyderabad - 5km category 2019
- *Best Innovation Award* - Apple EMEA 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
- 5<sup>th</sup> year distinction in *Fine Arts* and Painting - All India Art and Crafts Society 2010