Koustuv Sinha, PhD

CONTACT
INFORMATION

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RESEARCH
INTERESTS

Systematicity in Natural Language Processing, Neural Reasoning on Language, Multimodal NLP, Video-Text Interaction, Intepretability, Linguistics, Dialog Systems, Reproducibility in Machine Learning

WORK
EXPERIENCE

Meta AI, New York, USA

Research Scientist
August 2022 - present
- Fundamental AI Research (FAIR) Labs, Multimodal NLP
- Manager: Mike Rabbat

EDUCATION

McGill University, Montreal QC, Canada

PhD, School of Computer Science
September 2018 - November 2022
- Thesis: *Exploring the limits of systematicity of natural language understanding models*
- Advised by: Dr Joelle Pineau
- Collaborators: Dr Adina Williams, Dr William L. Hamilton, Dr Timothy J o'Donnell
- GPA : 4.0

MSc, School of Computer Science
September 2016 - August 2018
- Thesis: *Hierarchical text classification of large-scale topics: a Neural approach*
- Advised by: Dr Derek Ruths
- Collaborators: Dr Joelle Pineau, Dr Andrew Piper
- GPA : 3.94/4

West Bengal University of Technology, West Bengal, India

B.Tech, Computer Science & Engineering
August 2010 - May 2014
- Advised: Prof Ee-kian Wong
- Degree Grade Point Average (DGPA) : 9.16 / 10
- School: Institute of Engineering & Management

RESEARCH
EXPERIENCE

Meta AI, Montreal, QC, Canada

PhD Research Intern
January 2019 - December 2021
- Manager: Dr Joelle Pineau
- Collaborations from NLP group: Dr Adina Williams, Dr Douwe Kiela, Dr Dieuwke Hupkes, Dr Robin Jia, Dr Adi Renduchintala

Samsung Advanced Institute of Technology, Montreal, QC, Canada

Research Intern   *Summer 2018*
- Collaborations from Language Technology group: Sanghyun Yoo

Mila - Quebec AI Institute, Montreal, QC, Canada

Research Associate   *June 2017 - August 2022*
- Reasoning and Learning Lab (RLLab)
- Supervisor: Dr. Joelle Pineau

Network Dynamics Lab, Montreal, QC, Canada

Research Associate   *September 2016 - August 2018*
- Supervisor: Dr. Derek Ruths
- Collaborations with: Dr. Andrew Piper, David Jurgens

Indian Institute of Technology, Kanpur, India

Senior Project Associate   *September 2015 - March 2016*
- Supervisor: Dr. Arnab Bhattacharya & Dr. Koumudi Patil

TEACHING
EXPERIENCE

McGill University, Montreal QC, Canada

TA, COMP 424, Artificial Intelligence   *Winter 2022*
Dr. Jackie Chi-Kit Cheung

TA, COMP 652 Machine Learning   *Fall 2018*
Riashat Islam, Dr Audrey Durand

TA, COMP 551 Applied Machine Learning   *Fall 2017, Winter 2018*
Dr. Joelle Pineau, Dr Herke Van Hoof, Sarath Chandar, Ryan Lowe

TA, COMP 102B Computers & Computing   *Winter 2017*
Dr. Derek Ruths

TA, COMP 189 Computers & Society   *Fall 2016*
Dr. Derek Ruths

PUBLICATIONS

- Koustuv Sinha, Amirhossein Kazemnejad, Siva Reddy, Joelle Pineau, Dieuwke Hupkes, Adina Williams; *The Curious Case of Absolute Position Embeddings*, Findings of Empirical Methods of Natural Language Processing (EMNLP), 2022
- Shanya Sharma, Manan De, Koustuv Sinha; *How sensitive are translation systems to extra contexts? Mitigating gender bias in Neural Machine Translation models through relevant contexts*, Findings of Empirical Methods of Natural Language Processing (EMNLP), 2022
- Koustuv Sinha, Robin Jia, Dieuwke Hupkes, Joelle Pineau, Adina Williams, Douwe Kiela; *Masked Language Modeling and the Distributional Hypothesis: Order Word Matters Pre-training for Little*, Empirical Methods of Natural Language Processing (EMNLP), 2021
- Prasanna Parthasarathi, Koustuv Sinha, Joelle Pineau, Adina Williams; *Sometimes we want Translationese*, Empirical Methods of Natural Language Processing (EMNLP) Findings 2021

- <u>Koustuv Sinha</u>, Prasanna Parthasarathi, Joelle Pineau, Adina Williams; *UnNatural Language Inference*, Association of Computational Linguistics (ACL), 2021, **Oral**, **Outstanding Paper Award**
- Joelle Pineau, Philippe Vincent-Lamarre, <u>Koustuv Sinha</u>, Vincent Larivière, Alina Beygelzimer, Florence d'Alché-Buc, Emily Fox, Hugo Larochelle; *Improving Reproducibility in Machine Learning Research (A Report from the NeurIPS 2019 Reproducibility Program)*, Journal of Machine Learning Research (JMLR), 2020
- Nicolas Gontier, <u>Koustuv Sinha</u>, Siva Reddy, Christopher Pal; *Measuring Systematic Generalization in Neural Proof Generation with Transformers*, Neural Information Processing Systems (NeurIPS), 2020
- <u>Koustuv Sinha</u>, Joelle Pineau, Jessica Forde, Rosemary Nan Ke, Hugo Larochelle; *NeurIPS 2019 Reproducibility Challenge*, ReScience-C Journal, Volume 6, Issue 2, 2020
- <u>Koustuv Sinha</u>, Prasanna Parthasarathi, Jasmine Wang, Ryan Lowe, William L. Hamilton, Joelle Pineau; *Learning an Unreferenced Metric for Online Dialog Evaluation*, Association of Computational Linguistics (ACL), 2020
- Emily Goodwin, <u>Koustuv Sinha</u>, Timothy J O'Donnell; *Probing Linguistic Systematicity*, Association of Computational Linguistics (ACL), 2020
- <u>Koustuv Sinha</u>, Shagun Sodhani, Jin Dong, Joelle Pineau and Will Hamilton; *CLUTRR: A Diagnostic Benchmark for Inductive Reasoning in Text*, Empirical Methods of Natural language Processing (EMNLP), 2019, **Oral**
- Joelle Pineau, <u>Koustuv Sinha</u>, Genevieve Fried, Rosemary Nan Ke, and Hugo Larochelle; *ICLR Reproducibility Challenge, 2019*, ReScience-C Journal, Volume 5, Issue 2, 2019
- Peter Henderson, <u>Koustuv Sinha</u>, Nicolas Angelard-Gontier, Nan Rosemary Ke, Genevieve Fried, Ryan Lowe, Joelle Pineau; *Ethical Challenges in Data-Driven Dialogue Systems*, AAAI/ACM conference on Ethics and Safety, 2017

PREPRINTS

- Anuroop Sriram, Matthew Muckley, <u>Koustuv Sinha</u>, Farah Shamout, Joelle Pineau, Krzysztof J. Geras, Lea Azour, Yindalon Aphinyanaphongs, Nafissa Yakubova, William Moore; *COVID-19 Deterioration Prediction via Self-Supervised Representation Learning and Multi-Image Prediction*, January 2021
- <u>Koustuv Sinha</u>, Shagun Sodhani, Joelle Pineau, William L. Hamilton; *Evaluating Logical Generalization in Graph Neural Networks*, March 2020
- Nicolas Gontier, <u>Koustuv Sinha</u>, Peter Henderson, Iulian Serban, Michael Noseworthy, Prasanna Parthasarathi, Joelle Pineau; *The RLLChatbot: a solution to the ConvAI Challenge*, November 2018
- Peter Henderson, <u>Koustuv Sinha</u>, Rosemary Nan Ke, Joelle Pineau; *Adversarial Gain*, November 2018

INVITED TALKS

Hands on Reproducibility in Machine Learning
Bielefield University, Germany   *October 2021*
(online)
ML Reproducibility - From Theory to Practice
MICCAI Hackathon, Peru   *October 2020*
(online)
ML Reproducibility - From Theory to Practice
DL4Science Seminar   *August 2020*
Lawrence Berkeley National Laboratory, Berkeley (online)
Evaluating Logical Generalization with Graph Neural Networks
Weights and Biases Salon   *May 2020*
(online)
Best practices for ensuring Reproducibility in CS Research,
1st Annual CS-Can Student Symposium, Montreal   *May 2019*
McGill University, Montreal, QC, Canada
On the unreasonable complexity of detecting social interactions in literature
Digital Humanities (DH) 2017   *July'17*
McGill University, Montreal, QC, Canada

CONFERENCE ORGANIZATION

Machine Learning Reproducibility Challenge
Lead Organizer   *2018 - present*
- MLRC 2023
- MLRC 2022
- MLRC 2021
- MLRC 2020
- NeurIPS 2019
- ICLR 2019
- ICLR 2018

ACL 2024
Senior Area Chair   *May 2024*

NeurIPS 2022
Journal Chair   *December 2022*
- Co-organizer with Tegan Maharaj

NeurIPS 2019-2020
Reproducibility Chair   *December 2019, December 2020*
- Co-organizer with Joelle Pineau

WORKSHOP ORGANIZATION

NILLI: Novel Ideas in Learning to Learn with Interaction Workshop
EMNLP 2021, 2022   *2021-2022*
- Co-organizer with Prasanna Parthasarathi

ML Retrospectives Workshop
NeurIPS 2019   *December 2019*
- Co-organizer

ACTIVITIES   **Volunteering**
- NeurIPS 2018
- Montreal AI Symposium (MAIS) 2018

Computer Science Graduate Society (CSGS)
President   *2018-2019*
- McGill University

VP Social & Finance   *2017-2018*
- McGill University

NodeSchool
Kolkata Chapter   *May 2016*
- Institute of Engineering & Management, Kolkata

AWARDS &   **Association for Computational Linguistics (ACL) 2023**
ACHIEVEMENTS Outstanding Paper Award   *July, 2023*
- Awarded for the paper "*Language model acceptability judgements are not always robust to context*"

Association for Computational Linguistics (ACL) 2021
Outstanding Paper Award   *June, 2021*
- Awarded for the paper "*UnNatural Language Inference*"

Fonds Nature et Technologies Quebec (FRQNT)
Masters Scholarship   *2018*
- Computer Science

Facebook AI
ParlAI Grant   *Fall 2017*
- Project: Multi-model dialog generation with Off-Policy Q Learning

Pierre Arbour Foundation Scholarship
Masters Scholarship   *2017-2018*
- Computer Science & Engineering

Ramakrishna Mission Vidyalaya, Narendrapur
Sridharacharya Prize for Computer Excellency   *2007*
- Awarded for consistent highest performance in Computer Science courses in high school (Ramakrishna Mission Vidyalaya, Narendrapur)

REFERENCES   Available on request.