

Koustuv Sinha, PhD

CONTACT INFORMATION

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RESEARCH INTERESTS

Systematicity in Natural Language Processing, Neural Reasoning on Language, Intepretability, Linguistics, Dialog Systems, Reproducibility in Machine Learning

WORK EXPERIENCE

Meta AI, New York, USA

Research Scientist

August 2022 - present

- Fundamental AI Research (FAIR), NLP & Speech
- Manager: Adina Williams

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

- Koustuv Sinha, Prasanna Parthasarathi, Joelle Pineau, Adina Williams; *UnNatural Language Inference*, Association of Computational Linguistics (ACL), 2021, **Oral, Outstanding Paper Award**
- Joelle Pineau, Philippe Vincent-Lamarre, Koustuv Sinha, 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, Koustuv Sinha, Siva Reddy, Christopher Pal; *Measuring Systematic Generalization in Neural Proof Generation with Transformers*, Neural Information Processing Systems (NeurIPS), 2020
- Koustuv Sinha, Joelle Pineau, Jessica Forde, Rosemary Nan Ke, Hugo Larochelle; *NeurIPS 2019 Reproducibility Challenge*, ReScience-C Journal, Volume 6, Issue 2, 2020
- Koustuv Sinha, 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, Koustuv Sinha, Timothy J O’Donnell; *Probing Linguistic Systematicity*, Association of Computational Linguistics (ACL), 2020
- Koustuv Sinha, 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, Koustuv Sinha, Genevieve Fried, Rosemary Nan Ke, and Hugo Larochelle; *ICLR Reproducibility Challenge, 2019*, ReScience-C Journal, Volume 5, Issue 2, 2019
- Peter Henderson, Koustuv Sinha, Nicolas Angelard-Gontier, Nan Rosemary Ke, Genevieve Fried, Ryan Lowe, Joelle Pineau; *Ethical Challenges in Data-Driven Dialogue Systems*, AAI/ACM conference on Ethics and Safety, 2017

PREPRINTS

- Anuroop Sriram, Matthew Muckley, Koustuv Sinha, 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
- Koustuv Sinha, Shagun Sodhani, Joelle Pineau, William L. Hamilton; *Evaluating Logical Generalization in Graph Neural Networks*, March 2020
- Nicolas Gontier, Koustuv Sinha, Peter Henderson, Iulian Serban, Michael Noseworthy, Prasanna Parthasarathi, Joelle Pineau; *The RLLChatbot: a solution to the ConvAI Challenge*, November 2018
- Peter Henderson, Koustuv Sinha, Rosemary Nan Ke, Joelle Pineau; *Adversarial Gain*, November 2018

INVITED TALKS

	Hands on Reproducibility in Machine Learning	
	Bielefeld University, Germany	<i>October 2021</i>
	(online)	
	ML Reproducibility - From Theory to Practice	
	MICCAI Hackathon, Peru	<i>October 2020</i>
	(online)	
	ML Reproducibility - From Theory to Practice	
	DL4Science Seminar	<i>August 2020</i>
	Lawrence Berkeley National Laboratory, Berkeley (online)	
	Evaluating Logical Generalization with Graph Neural Networks	
	Weights and Biases Salon	<i>May 2020</i>
	(online)	
	Best practices for ensuring Reproducibility in CS Research,	
	1st Annual CS-Can Student Symposium, Montreal	<i>May 2019</i>
	McGill University, Montreal, QC, Canada	
	On the unreasonable complexity of detecting social interactions in literature	
	Digital Humanities (DH) 2017	<i>July'17</i>
	McGill University, Montreal, QC, Canada	
CONFERENCE ORGANIZATION	Machine Learning Reproducibility Challenge	
	Lead Organizer	<i>2018 - present</i>
	<ul style="list-style-type: none"> • MLRC 2022 • MLRC 2021 • MLRC 2020 • NeurIPS 2019 • ICLR 2019 • ICLR 2018 	
	NeurIPS 2022	
	Journal Chair	<i>December 2022</i>
	<ul style="list-style-type: none"> • Co-organizer with Tegan Maharaj 	
	NeurIPS 2019-2020	
	Reproducibility Chair	<i>December 2019, December 2020</i>
	<ul style="list-style-type: none"> • Co-organizer with Joelle Pineau 	
WORKSHOP ORGANIZATION	NILLI: Novel Ideas in Learning to Learn with Interaction Workshop	
	EMNLP 2021, 2022	<i>2021-2022</i>
	<ul style="list-style-type: none"> • Co-organizer with Prasanna Parthasarathi 	
	ML Retrospectives Workshop	
	NeurIPS 2019	<i>December 2019</i>
	<ul style="list-style-type: none"> • Co-organizer 	

ACTIVITIES	Volunteering	
	<ul style="list-style-type: none"> • NeurIPS 2018 • Montreal AI Symposium (MAIS) 2018 	
	Computer Science Graduate Society (CSGS)	
	President	<i>2018-2019</i>
	<ul style="list-style-type: none"> • McGill University 	
	VP Social & Finance	<i>2017-2018</i>
	<ul style="list-style-type: none"> • McGill University 	
	NodeSchool	
	Kolkata Chapter	<i>May 2016</i>
	<ul style="list-style-type: none"> • Institute of Engineering & Management, Kolkata 	
AWARDS & ACHIEVEMENTS	Association for Computational Linguistics (ACL) 2021	
	Outstanding Paper Award	<i>June, 2021</i>
	<ul style="list-style-type: none"> • Awarded for the paper “<i>UnNatural Language Inference</i>” 	
	Fonds Nature et Technologies Quebec (FRQNT)	
	Masters Scholarship	<i>2018</i>
	<ul style="list-style-type: none"> • Computer Science 	
	Facebook AI	
	ParlAI Grant	<i>Fall 2017</i>
	<ul style="list-style-type: none"> • Project: Multi-model dialog generation with Off-Policy Q Learning 	
	Pierre Arbour Foundation Scholarship	
Masters Scholarship	<i>2017-2018</i>	
<ul style="list-style-type: none"> • Computer Science & Engineering 		
Ramakrishna Mission Vidyalaya, Narendrapur		
Sridharacharya Prize for Computer Excellency	<i>2007</i>	
<ul style="list-style-type: none"> • Awarded for consistent highest performance in Computer Science courses in high school (Ramakrishna Mission Vidyalaya, Narendrapur) 		
REFERENCES	Available on request.	