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INTERESTS AND PROJECTS THAT I LEAD

- Developing Foundational Large Language Models (LLMs)
 - Pretraining and instruction tuning:
 - * [xGen](#) ([code](#), [paper](#), [blog](#), [media](#), [CEO's endorsement](#))
Impact: xGen is Salesforce's foundational model series, serving as the basis for other in-house LLMs like [CodeGen](#) and [xGen-MM](#) (multi-modal). It currently powers numerous production use cases in the [Sales and Service Clouds](#).
 - Contextual LLM:
 - * [SFR-RAG](#) ([code](#), [paper](#), [blog](#), [media](#), [CEO's endorsement](#))
Impact: SFR-RAG is a 9B LLM that has been instruction-tuned with an emphasis on context-grounded generation and minimizing hallucinations. It empowers [Agentforce's](#) RAG-based use cases across various industries, including finance and healthcare.
 - * Inference acceleration for long context: [GemFilter](#) ([code](#), [paper](#))
 - * [Context utilization](#) & [Faithfulness](#) ([FaithEval](#))
 - LLM judge & generative reward modeling:
 - * [SFR-Judge](#) ([code](#), [paper](#), [blog](#), [media](#))
Impact: It empowers [Agentforce's](#) LLMs by providing reward feedback at different stages; it is also used in SF's [benchmarking efforts](#).
- LLM reasoning
 - Factual chain of thought ([Chain of Knowledg](#), [Verify & Edit](#))
 - Learning to reason ([PRM](#)); Logical reasoning ([FOLIO](#), [P-FOLIO](#))
 - In-context learning ([LDP](#))
- LLM Benchmarking
 - CRM benchmarks for large, small and agentic LLMs ([link](#), [blog](#), [media](#))
 - Summarization & QA ([InstruSum](#), [DiverseSum](#), [DIVKNOWQA](#), [ContextualBench](#))
 - ChartLLM Benchmarks – [ChartQA](#), [OpenCQA](#), [Chart2Text](#)
- CodeLLMs ([CodeT5](#), [CodeChain](#), [Personalized Distillation](#), [xCodeEval](#))
- Multi-modal LLMs ([ALBEF](#), [X-InstructBLIP](#), [DiffusionDPO](#), [UniChart](#), [ChartInstruct](#))

PROFESSIONAL EMPLOYMENTS

Research Director (full time) <i>Salesforce Research, Palo Alto, USA</i> <i>Leading efforts on foundation LLMs (xGen, SFR-RAG)</i>	Aug'22 - present
Associate Professor (tenured, on leave since Aug'22) <i>Nanyang Technological University (NTU), Singapore</i> <i>Founder of NTU-NLP Group</i>	Mar'22 - present
Senior Manager (part time) <i>Salesforce AI Research, Singapore</i> <i>Founding manager of the lab</i>	Feb'19 - Aug'22
Assistant Professor <i>Nanyang Technological University (NTU), Singapore</i>	Aug'17 - Feb'22
Research Scientist <i>Qatar Computing Research Institute, Qatar</i>	Jan'14 - Jul'17
Research & Teaching Assistant <i>University of British Columbia, University of Lethbridge</i>	Aug'06 - Dec'13
Research Intern <i>Microsoft Research</i>	Sep'10 - Nov'10
Lecturer <i>Islamic University of Technology, Bangladesh</i>	Jan'05 - Aug'06

EDUCATION

Ph.D. (Computer science) <i>University of British Columbia (UBC), Vancouver, Canada</i> “Discourse analysis of asynchronous conversations” Thesis advisors: Giuseppe Carenini & Raymond T. Ng Internal committee members: Nando de Freitas (now at Oxford/DeepMind) & Rachel Pottinger External committee members: Carolyn P. Rosé (CMU) & Amanda Stent (Yahoo! Research)	2008-2014
M.Sc. (Computer science) <i>University of Lethbridge (UofL), Alberta, Canada</i> “Answer Extraction for Simple and Complex Questions” Thesis advisor: Yllias Chali Other committee members: Sajjad Zahir, Howard Cheng & Giuseppe Carenini (external)	2006-2008
B.Sc. (Computer science) <i>Islamic University of Technology (IUT), Dhaka, Bangladesh</i> CGPA: 4.97/5.00 (2nd in the class)	2001-2005

MAJOR HONORS AND AWARDS

- Nominated for NTU College of Engineering (CoE) Young Faculty Award (Research) 2022 (Nominated by SCSE)
- Nominated for Nanyang Research Award (Young Investigator) 2021 – 2022 (Nominated by SCSE)
- NSERC Alexander Graham Bell Canada Graduate Scholarship¹ (CGS-D) 2010 – 2012 \$35,000 CAD/Year
- Four Year Fellowship (UBC) 2010 – 2013 \$18,000 CAD/Year
- Faculty of Science Graduate Studies Award (UBC) 2010 – 2013 \$7,200 CAD/Year
- Nominated for MIT Technology Review's Innovators Under 35 (Asia) 2017 – 2018
- Microsoft Research Excellent Intern, 2010
- Nomination for Governor General Gold Medal for Best MSc. Thesis (UofL), 2008
- David R. Cheriton Scholarship, University of Waterloo, 2008 [Declined]
- FS Chia Ph.D. Scholarship, University of Alberta, 2008 [Declined]
- First class 2nd in BSc, 5th in higher secondary (HSC) & 11th in secondary (SSC) merit lists

TEACHING EXPERIENCE

Instructor, Nanyang Technological University (NTU) 2017 - 2022

- **Year 2021 - 2022:**
 - (i) Term 1: CZ4045: Natural Language Processing (Lec, Tut); CZ2002: Object Oriented Design & Programming (Tut. & Lab)
 - (ii) Term 2: CE-7455 (PhD level): *Deep Learning for NLP* (added meta learning and VAEs)
- **Year 2020 - 2021:**
 - (i) Term 1: CZ4045: Natural Language Processing (*syllabus revised with deep learning*) (Lec, Tut); CZ2002: Object Oriented Design & Programming (Tut. & Lab)
 - (ii) Term 2: CE-7455 (PhD level): *Deep Learning for NLP* (added multilingual NLP)
- **Year 2019 - 2020:**
 - (i) Term 1: CZ3005: Artificial Intelligence (Lec, Lab, Tut); CZ1007: Data Structures & Algorithm (Tut. & Lab)
 - (ii) Term 2: CE-7455 (PhD level): *Deep Learning for NLP* (*new offer*)
- **Year 2018 - 2019:**

¹This award is given only to the top-ranked PhD students across Canada.

(i) Term 1: CZ3005: Artificial Intelligence (Lec, Lab, Tut), CZ1007:Data Structures & Algorithm (Tut. & Lab)

(ii) Term 2: CZ3005: Artificial Intelligence (Lec, Lab, Tut)

- **Year 2017 - 2018:**

(i) Term 1: CZ1007:Data Structures & Algorithm (Tutorial & Lab)

(ii) Term 2: CZ3005: Artificial Intelligence (Lecture, Lab, & Tutorial)

Teaching Assistant, University of British Columbia

2008-2013

- Courses TAed: Grad NLP, Grad/Ugrad AI, Object Oriented Programming, Intro. to Comp.

Teaching Assistant, University of Lethbridge

2006-2008

- Courses TAed: Introduction to Computers.

Lecturer, Islamic University of Technology

2005-2006

- Courses Taught: Theory of computation, UNIX prog., Systems prog., OOP.

PATENTS

Issued/Published Patents

1. Xuan-Phi Nguyen, **Shafiq Joty**, and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR A TRANSFORMER NETWORK WITH TREE-BASED ATTENTION FOR NATURAL LANGUAGE PROCESSING](#)”, **US 2021/0049236 A1**, US Patent (2021).
2. Yifan Gao, Chu Hong Hoi, **Shafiq Joty** and Chien-Sheng Wu., “[SYSTEMS AND METHODS FOR EXPLICIT MEMORY TRACKER WITH COARSE-TO-FINE REASONING IN CONVERSATIONAL MACHINE READING](#)”, *Patent Nb: 16/863,999* **US2021/0174023 A1**, US Patent (2021).
3. Weishi Wang, **Shafiq Joty**, and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR RESPONSE SELECTION IN MULTI-PARTY CONVERSATIONS WITH DYNAMIC TOPIC TRACKING](#)”, *Patent Nb: 17/014,458* **US Patent**, Filing Date: September 8, 2020 (2020).
4. Samson Tan and **Shafiq Joty.**, “[SYSTEMS AND METHODS FOR GENERATING NATURAL LANGUAGE PROCESSING TRAINING SAMPLES WITH INFLECTIONAL PERTURBATIONS](#)”, **US 2021/0173872 A1**, US Patent (2021).
5. Samson Tan and **Shafiq Joty.**, “[SYSTEMS AND METHODS FOR CODE-MIXING ADVERSARIAL TRAINING](#)”, *Patent Nb:US20220164547A1* **US Patent**, Filing Date: January 15, 2021 (2021).
6. Yue Wang, Chu Hong Hoi, and **Shafiq Joty.**, “[UNIFIED VISION AND DIALOGUE TRANSFORMER WITH BERT](#)”, *Patent Nb: 16/929,738* **US2021/0232773 A1**, US Patent (2021).
7. Karan Aggarwal, Swaraj Khadanga, **Shafiq Joty**, Louis Kazaglis, and Jaideep Srivastava, “[COMPUTER ARCHITECTURE FOR IDENTIFYING SLEEP STAGES](#)”, **US 2021/0023331 A1**, US Patent (2021).

8. Karan Aggarwal, Swaraj Khadanga, **Shafiq Joty**, and Jaideep Srivastava, “[USING CLINICAL NOTES WITH TIME SERIES DATA FOR ICU MANAGEMENT](#)”, *NTU REF: 2019-374 US Patent*, (2020).
9. Amrita Saha, **Shafiq Joty**, and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR NUMERICAL REASONING BY A PARTIALLY SUPERVISED NUMERIC REASONING MODULE NETWORK](#)”, *Patent Nb: 17/162,289 US Patent*, Filing Date: 01/29/2021 (2021).
10. Yue Wang, Weishi Wang, **Shafiq Joty** and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR CODE UNDERSTANDING AND GENERATION](#)”, *US20220382527A1 US patent*, Filing Date: May 18, 2021 (2021).
11. Akhilesh Deepak Gotmare, Junnan Li, **Shafiq Joty** and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR SEMANTIC CODE SEARCH](#)”, *US8301633B2 US patent*, Filing Date: May 18, 2021 (2021).
12. Guangsen Wang, Samson Tan, **Shafiq Joty**, Gang Wu, Steven (Chu Hong) Hoi., “[BOTSIM: AN END-TO-END AUTOMATIC EVALUATION FRAMEWORK FOR TASK-ORIENTED DIALOG SYSTEMS](#)”, *70689.209PV01 US patent*, Filing Date: Jan 20, 2022 (2022).
13. Hailin Chen, Amrita Saha, **Shafiq Joty** and Chu Hong Hoi., “[Learning Label Modular Prompts for Text Classification](#)”, *70689.220US01 (63/355,476) US patent*, Filing Date: Jun 17 (2022).
14. Hailin Chen, Amrita Saha, **Shafiq Joty** and Chu Hong Hoi., “[SYSTEMS AND METHODS FOR IN-CONTEXT LEARNING USING SMALL-SCALE LANGUAGE MODELS](#)”, *US18316969 US patent*, Filing Date: May 17 (2023).

Filed/Pending Patents

1. Ye Liu, Rui Meng, Meghana Bhat, Semih Yavuz, **Shafiq Joty**, Caiming Xiong, Yingbo Zhou, “SYSTEMS AND METHODS FOR INTEGRATING RETRIEVERS AND LARGE LANGUAGE MODELS FOR ANSWER GENERATION”, *US18497395 US patent*, Filing Date: Jun 23 (2023).
2. Tong Niu, **Shafiq Joty**, Yingbo Zhou, Semih Yavuz, Wenting Zhao, Ye Liu, “SYSTEMS AND METHODS FOR QUESTION ANSWERING WITH DIVERSE KNOWLEDGE SOURCES”, *US18497395 US patent*, Filing Date: Sep 25 (2023).
3. Ye Liu, Rui Meng, Meghana Bhat, Semih Yavuz, **Shafiq Joty**, Caiming Xiong, Yingbo Zhou, “SYSTEMS AND METHODS FOR RETRIEVAL BASED QUESTION ANSWERING USING NEURAL NETWORK MODELS”, *US18497395 US patent*, Filing Date: Oct 30 (2023).
4. Le Xue, Ning Yu, Dongxu Li, Silvio Savarese, **Shafiq Joty**, Ran Xu, Caiming Xiong, Artemis Panagopoulou, Juan Carlos Niebles, “SYSTEMS AND METHODS FOR ZERO-SHOT CROSS-MODAL REASONING VIA UNI-MODAL PROJECTIONS TO LARGE LANGUAGE MODELS”, *US 63586073 US patent*, Filing Date: Sep 28 (2023).
5. Kung-Hsiang Huang, Alex Fabbri, **Shafiq Joty**, Jason Wu, Prafulla Kumar Choubey, Philippe Laban, “SYSTEMS AND METHODS FOR EVALUATING SUMMARIZATION MODELS”, *US63519201 US patent*, Filing Date: Aug 23 (2023).

6. Wojciech Kryscinski, Alex Fabbri, Caiming Xiong, **Shafiq Joty**, Jason Wu, Divyansh Agarwal, Philippe Laban, “SYSTEMS AND METHODS FOR FACTUAL NATURAL LANGUAGE PROCESSING”, *US63503701 US patent*, Filing Date: Sep 26 (2023).
7. Wojciech Kryscinski, Alex Fabbri, Caiming Xiong, **Shafiq Joty**, Jason Wu, Divyansh Agarwal, Philippe Laban, “Measuring LLM Ability at Factual Reasoning Through The Lens of Summarization”, *US63503701 US patent*, Filing Date: May 22 (2023).
8. Hailin Chen, Amrita Saha, Akash Gokul, Doyen Sahoo, **Shafiq Joty**, Henry Le , “CodeChain: Towards Modular Code Generation Through Chain of Self-revisions with Representative Sub-modules”, *US63585865 US patent*, Filing Date: Sep 27 (2023).
9. Amrita Saha, Hailin Chen, **Shafiq Joty**, Steven Hoi, “SYSTEMS AND METHODS FOR PERSONALIZED DISTILLATION FOR LARGE LANGUAGE MODELS”, *SFDC/P/104883/US/UTL/1 US patent*, Filing Date: Aug 23 (2023).
10. Yue Wang, Weishi Wang, **Shafiq Joty** and Chu Hong Hoi., “Retrieval-Augmented Patch Generation with CodeT5 for Automatic Program Repair”, *70689.220US01 (63/189,857) US patent*, Filing Date: Jul 19, 2022 (2022).
11. DING Bosheng, LIU Linlin, BING Lidong, NGUYEN Hai Thien, **Joty Shafiq**, MIAO Chunyan, Si LUO., “Method And Apparatus For Training A Text Tagging Model”, *202011075457.0. (NTU Ref: 2021-023) Chinese patent*, Filing Date: 9 October (2021).
12. Yingzhu Zhao, Chongjia Ni, Cheung-Chi Leung, **Shafiq Joty**, Eng Siong, and Bin Ma, “Speech Recognition System, Method, Apparatus And Device.”, *NTU Ref: 2021-077-01-CN Chinese patent*, Filing Date: 22 February (2021).
13. DING Bosheng, LIU Linlin, BING Lidong, **Joty Shafiq**, MIAO Chunyan, Si LUO., “Data Augmentation Method, Named Recognition Method, Equipment and Electronic Device”, *(NTU Ref: 2021-520) Chinese patent*, Filing Date: 15 January (2022).

PEER-REVIEWED JOURNAL PAPERS

* Indicates co-lead author;

** Most of the codes of my papers can be found in the [NTU-NLP](#) group page

• NLP

1. Tasnim Mohiuddin and **Shafiq Joty**, “[Unsupervised Word Translation with Adversarial Autoencoder](#)”, *Computational Linguistics* **46:2**, (presented at ACL-2020) (Jun, 2020).
2. **Shafiq Joty** and Tasnim Mohiuddin, “[Modeling Speech Acts in Asynchronous Conversations: A Neural-CRF Approach.](#)”, *Computational Linguistics (Special Issue on Language in Social Media)* **44:4**, 859 - 894 (2018).
3. **Shafiq Joty**, Francisco Guzmán, Lluís Màrquez, and Preslav Nakov., “[Discourse Structure in Machine Translation Evaluation.](#)”, *Computational Linguistics*. **43:4**, 683–722 (Dec, 2017).
4. **Shafiq Joty**, Nadir Durrani, Hassan Sajjad, and Ahmed Abdelali., “[Domain Adaptation Using Neural Network Joint Model.](#)”, *Journal of Computer Speech and Language (Special Issue on Deep Learning for Machine Translation)*. **45:C**; **csl.2016.12.006**, 161–179 (Sep, 2017).

5. Francisco Guzmán, **Shafiq Joty**, Lluís Màrquez, and Preslav Nakov., “[Machine Translation Evaluation with Neural Networks.](#)”, *Journal of Computer Speech and Language (Special Issue on Deep Learning for Machine Translation)*. **45:C**; csl.2016.12.005, 180–200 (Sep, 2017).
6. **Shafiq Joty**, Giuseppe Carenini and Raymond Ng, “[CODRA: A Novel Discriminative Framework for Rhetorical Analysis.](#)”, *Computational Linguistics*. **41:3**, 385–435, MIT press (2015).
7. **Shafiq Joty**, Giuseppe Carenini and Raymond Ng, “[Topic Segmentation and Labeling in Asynchronous Conversations.](#)”, *Journal of AI Research*. **47**, 521-573 (2013).
8. Yllias Chali*, Sadid Hasan* and **Shafiq Joty***, “[Improving graph-based random walks for complex question answering using syntactic, shallow semantic and extended string subsequence kernels.](#)”, *Information Processing and Management*. **47:6**, 843–855, Elsevier (2011).
9. Yllias Chali*, **Shafiq Joty*** and Sadid Hasan, “[Complex Question Answering: Unsupervised Learning Approaches and Experiments.](#)”, *Journal of AI Research*. **35**, 1-47 (2009). (I was a co-lead author of this paper.)

• Interdisciplinary

1. Dhakshenya Ardhithy Dhinakaran, Laura Martinengo, Moon-Ho Ringo Ho, **Shafiq Joty**, Tobias Kowatsch, Rifat Atun, Lorainne Tudor Car , “[Designing, developing, evaluating, and Implementing a Smartphone-delivered, rule-based CONVERsational agent \(DISCOVER\): a conceptual framework.](#)”, *JMIR mHealth and uHealth*. **35**, 1-38 (2022).
2. Althaf Marsoof, Andrés Luco, Harry Tan, and **Shafiq Joty**, “[Content-filtering AI systems—limitations, challenges and regulatory approaches.](#)”, *Information Communications Technology Law*. **35**, 1-38 (2022).
3. Hui Li, Mengting Xu, Sourav Bhowmick, **Shafiq Joty**, Changsheng Sun, and Jiangtao Cui, “[PIANO: Influence Maximization Meets Deep Reinforcement Learning](#)”, *IEEE Transactions on Computational Social Systems* , (IEEE TCSS) (Apr, 2022).
4. Xiangxi Shi, Jianfei Cai, Jiuxiang Gu, and **Shafiq Joty.**, “[Video Captioning with Boundary-Aware Hierarchical Language Decoding and Joint Video Prediction](#)”, *Neurocomputing* **417**, 347-356 (Dec, 2020).
5. Jing Ma, Wei Gao, **Shafiq Joty**, and Kam-Fai Wong, “[An Attention-based Rumor Detection Model with Tree-structured Recursive Neural Networks](#)”, *ACM Transactions on Intelligent Systems and Technology (TIST)* **11:04**, (42) (2020).
6. Lorainne Car, Dhakshenya Dhinakaran, Bhone Kyaw, Tobias Kowatsch, **Shafiq Joty**, Yin Theng, and Rifat Atun, “[Conversational agents in healthcare: a scoping review and conceptual analysis](#)”, *Journal of Medical Internet Research (JMIR)* **22:8**, (Aug, 2020).
7. Aarti Sathyanarayana, **Shafiq Joty**, Luis Fernandez-Luque, Ferda Ofli, Jaideep Srivastava, Ahmed Elmagarmid, Shahrad Taheri, and Teresa Arora., “[Sleep Quality Prediction From Wearable Data Using Deep Learning](#)”, *JMIR Mhealth Uhealth (JMU)* **4(4):e125**, JMIR (2016).

PEER-REVIEWED CONFERENCE PAPERS [BY YEAR]

* Indicates co-lead author;

** Most of the codes of my papers can be found in the [NTU-NLP](#) group page

2024

1. Fangkai Jiao, Chengwei Qin, Zhengyuan Liu, Nancy F. Chen, and **Shafiq Joty**., “[Learning Planning-based Reasoning by Trajectories Collection and Process Reward Synthesizing](#)”, In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024)*, Miami, USA (2023).
2. Mohammed Islam, Md Laskar, Md Parvez, Enamul Hoque and **Shafiq Joty**., “[DataNarrative: Automated Data-Driven Storytelling with Visualizations and Texts](#)”, In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024)*, Miami, USA (2023).
3. Xingxuan Li, Yutong Li, Lin Qiu, **Shafiq Joty** and Lidong Bing., “[Evaluating Psychological Safety of Large Language Models](#)”, In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024)*, Miami, USA (2023).
4. Simeng Han, Hailey Schoelkopf, Yilun Zhao, Zhenting Qi, Martin Riddell, Wenfei Zhou, James Coady, David Peng, Yujie Qiao, Luke Benson, Lucy Sun, Alexander Wardle-Solano, Hannah Szabó, Ekaterina Zubova, Matthew Burtell, Jonathan Fan, Yixin Liu, Brian Wong, Malcolm Sailor, Ansong Ni, Linyong Nan, Jungo Kasai, Tao Yu, Rui Zhang, Alexander Fabbri, Wojciech Maciej Kryscinski, Semih Yavuz, Ye Liu, Victoria Lin, **Shafiq Joty**, Yingbo Zhou, Caiming Xiong, Rex Ying, Arman Cohan, Dragomir Radev, “[FOLIO: Natural Language Reasoning with First-Order Logic](#)”, In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024)*, Miami, USA (2023).
5. Md Laskar, Sawsan Alqahtani, M Bari, Mizanur Rahman, Mohammad Khan, Haidar Khan, Israt Jahan, Amran Bhuiyan, Chee Tan, Md Parvez, Enamul Hoque, **Shafiq Joty** and Jimmy Huang., “[A Systematic Survey and Critical Review on Evaluating Large Language Models: Challenges, Limitations, and Recommendations](#)”, In *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024)*, Miami, USA (2023).
6. Divyansh Agarwal, Alexander R Fabbri, Philippe Laban, **Shafiq Joty**, Caiming Xiong, Chien-Sheng Wu, “[Investigating the prompt leakage effect and black-box defenses for multi-turn LLM interactions](#)”, In *Findings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024 Industry Track)*, Miami, USA (2023).
7. Shayekh Islam, Md Rahman, K Hossain, Enamul Hoque, **Shafiq Joty** and Md Parvez , “Open-RAG: Enhanced Retrieval Augmented Reasoning with Open-Source Large Language Models”, In *Findings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP-2024 Findings)*, Miami, USA (2023).
8. SIMENG HAN, Aaron Yu, Rui Shen, Zhenting Qi, Martin Riddell, Wenfei Zhou, Yujie Qiao, Yilun Zhao, Semih Yavuz, Ye Liu, **Shafiq Joty**, Yingbo Zhou, Caiming Xiong, Rex Ying, Arman Cohan and Dragomir Radev, “P-FOLIO: Evaluating and Improving Logical Reasoning with Abundant Human-Written Reasoning Chains”, In *Findings of the 2024 Conference on*

Empirical Methods in Natural Language Processing (EMNLP-2024 Findings), Miami, USA (2023).

9. Artemis Panagopoulou, Le Xue, Ning Yu, Junnan Li, Dongxu Li, **Shafiq Joty**, Ran Xu, Silvio Savarese, Caiming Xiong, and Juan-Carlos Niebles., “[X-InstructBLIP: A Framework for aligning X-Modal instruction-aware representations to LLMs and Emergent Cross-modal Reasoning.](#)”, In *2024 European Conference on Computer Vision (ECCV-24)*, Seattle, USA (2024).
10. Mohammad Khan, M Bari, Do Long, Weishi Wang, Md Parvez, and **Shafiq Joty**, “[XCodeEval: An Execution-based Large Scale Multilingual Multitask Benchmark for Code Understanding, Generation, Translation and Retrieval](#)”, In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24)*, Bangkok, Thailand (2024).
11. Mathieu Ravaut, Aixin Sun, Nancy Chen, and **Shafiq Joty**, “[On Context Utilization in Summarization with Large Language Models](#)”, In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24)*, Bangkok, Thailand (2024).
12. Xuan-Phi Nguyen, Sharifah Mahani Aljunied, **Shafiq Joty**, and Lidong Bing, “[Democratizing LLMs for Low-Resource Languages by Leveraging their English Dominant Abilities with Linguistically-Diverse Prompts](#)”, In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24)*, Bangkok, Thailand (2024).
13. Ahmed Masry, Mehrad Shahmohammadi, Md Parvez, and **Shafiq Joty**, “[ChartInstruct: Instruction Tuning for Chart Comprehension and Reasoning](#)”, In *Findings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24 Findings)*, Bangkok, Thailand (2024).
14. Bosheng Ding, Chengwei Qin, Ruochen Zhao, Tianze Luo, Xinze Li, Guizhen Chen, Wenhan Xia, Junjie Hu, Anh-Tuan Luu, and **Shafiq Joty**, “[Data Augmentation using LLMs: Methods, Learning Paradigms and Challenges](#)”, In *Findings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24 Findings)*, Bangkok, Thailand (2024).
15. Faisal Shohan, Mir Nayeem, Samsul Islam, Abu Akash, and Shafiq Joty, and **Shafiq Joty**, “[XL-HeadTags: Leveraging Multimodal Retrieval Augmentation for the Multilingual Generation of News Headlines and Tags](#)”, In *Findings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL-24 Findings)*, Bangkok, Thailand (2024).
16. Kung-Hsiang Huang, Philippe Laban, Alexander Fabbri, Prafulla Kumar, **Shafiq Joty**, Caiming Xiong, and Chien-Sheng Wu., “[Embrace Divergence for Richer Insights: A Multi-document Summarization Benchmark and a Case Study on Summarizing Diverse Information from News Articles.](#)”, In *2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-24)*, New Mexico, Mexico (2024).
17. Fangkai Jiao, Zhiyang Teng, Bosheng Ding, Zhengyuan Liu, Nancy Chen, and **Shafiq Joty.**, “[Exploring Self-supervised Logic-enhanced Training for Large Language Models.](#)”, In *2024 Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-24)*, New Mexico, Mexico (2024).
18. Chengwei Qin, Ruirui Chen, Ruochen Zhao, Wenhan Xia, and **Shafiq Joty.**, “[Lifelong Event Detection with Embedding Space Separation and Compaction.](#)”, In *2024 Annual Conference of*

the North American Chapter of the Association for Computational Linguistics (**NAACL-24**), New Mexico, Mexico (2024).

19. Yixin Liu, Alexander Fabbri, Jiawen Chen, Yilun Zhao, SIMENG HAN, **Shafiq Joty**, Pengfei Liu, Dragomir Radev, Chien-Sheng Wu, and Arman Cohan., “[Benchmarking Generation and Evaluation Capabilities of Large Language Models for Instruction Controllable Summarization](#).”, In *2024 Findings of the North American Chapter of the Association for Computational Linguistics (NAACL-24 Findings)*, New Mexico, Mexico (2024).
20. Ramit Sawhney, Megh Thakkar, Vishwa Shah, Shrey Pandit, and **Shafiq Joty**., “[AdaPT: A Set of Guidelines for Hyperbolic Multimodal Multilingual NLP](#)”, In *2024 Findings of the North American Chapter of the Association for Computational Linguistics (NAACL-24 Findings)*, New Mexico, Mexico (2024).
21. Wenting Zhao, Ye Liu, Tong Niu, Yao Wan, Philip Yu, **Shafiq Joty**, Yingbo Zhou, and Semih Yavuz., “[DIVKNOWQA: Assessing the Reasoning Ability of LLMs via Open-Domain Question Answering over Knowledge Base and Text](#).”, In *Findings of the North American Chapter of the Association for Computational Linguistics (NAACL-24 Findings)*, New Mexico, Mexico (2024).
22. Bram Wallace, Meihua Dang, Rafael Rafailov, Linqi Zhou, Aaron Lou, Senthil Purushwalkam, Stefano Ermon, Caiming Xiong, **Shafiq Joty**, and Nikhil Naik., “[Diffusion Model Alignment Using Direct Preference Optimization](#).”, In *International Conference on Computer Vision and Pattern Recognition (CVPR-24)*, Seattle, USA (2024).
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2. Han-Cheol Moon*, Tasnim Mohiuddin*, **Shafiq Joty***, and Chi Xu., “[A Unified Neural Coherence Model](#).”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2019)*, pages x-x, Hong Kong, China (2019).
3. Prathyusha Jwalapuram, **Shafiq Joty**, Irina Temnikova, and Preslav Nakov., “[Evaluating Pronominal Anaphora in Machine Translation: An Evaluation Measure and a Test Suite](#).”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2019)*, pages x-x, Hong Kong, China (2019).
4. Swaraj Khadanga, Karan Aggarwal, **Shafiq Joty**, and Jaideep Srivastava., “[Using Clinical Notes with Multimodal Learning for ICU Management](#).”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2019)*, pages x-x, Hong Kong, China (2019).
5. Jiuxiang Gu, **Shafiq Joty**, Jianfei Cai, Handong Zhao, Xu Yang, and Gang Wang, “[Unpaired Image Captioning via Scene Graph Alignments](#)”, *In Proceedings of the International Conference on Computer Vision (ICCV’19)*, Seoul, Korea (2019).
6. Xiangxi Shi, Jianfei Cai, **Shafiq Joty**, and Jiuxiang Gu, “[Watch It Twice: Video Captioning with a Refocused Video Encoder](#)”, *In Proceedings of the 27th ACM International Conference on Multimedia (ACMMM’19)*, Nice, France (2019).
7. Xiang Lin*, **Shafiq Joty***, Prathyusha Jwalapuram and M Saiful Bari, “[A Unified Linear-Time Framework for Sentence-Level Discourse Parsing](#)”, *In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL’19)*, Florence, Italy (2019).
8. Jing Ma, Wei Gao, **Shafiq Joty**, and Kam-Fai Wong, “[Sentence-Level Evidence Embedding for End-to-End Claim Verification with Hierarchical Attention Networks](#)”, *In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL’19)*, Florence, Italy (2019).
9. **Shafiq Joty**, Giuseppe Carenini, Raymond Ng, and Gabriel Murray., “[Discourse Processing and Its Applications](#)”, *In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics: Tutorial (ACL-2019 Tutorial)*, Florence, Italy (2019).

10. Tasnim Mohiuddin and **Shafiq Joty**, “[Revisiting Adversarial Autoencoder for Unsupervised Word Translation with Cycle Consistency and Improved Training](#)”, In *Proceedings of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-19)*, Minneapolis, USA (2019).
11. Tasnim Mohiuddin, Thanh-Tung Nguyen and **Shafiq Joty** (Equal Contributions), “[Adaptation of Hierarchical Structured Models for Speech Act Recognition in Asynchronous Conversation](#)”, In *Proceedings of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-19)*, Minneapolis, USA (2019).
12. Karan Aggarwal, **Shafiq Joty**, Luis Fernandez-Luque, and Jaideep Srivastava., “[Adversarial Unsupervised Representation Learning for Activity Time-Series](#)”, In *Thirty-Third AAAI Conference on Artificial Intelligence (AAAI-2019)*, Honolulu, Hawaii (2019).
13. Sameer Khurana, **Shafiq Joty**, Ahmed Ali, and James Glass, “[A Factorial Deep Markov Model For Unsupervised Disentangled Representation Learning From Speech](#)”, In *International Conference on Acoustics, Speech, and Signal Processing (ICASSP-2019)*, Brighton, UK (2019).
14. Siyuan Liu, Sourav S Bhowmick, Wanlu Zhang, Shu Wang, Wanyi Huang, and **Shafiq Joty**, “[NEURON: Query Execution Plan Meets Natural Language Processing For Augmenting DB Education](#)”, In *Proceedings of 45th ACM SIGMOD International Conference on Management of Data (SIGMOD-2019 Demo)*, Amsterdam, NL (2019).

2018

1. **Shafiq Joty**, Giuseppe Carenini, Raymond Ng, and Gabriel Murray., “[Discourse Processing and Its Applications in Text Mining](#)”, In *18th IEEE International Conference on Data Mining: Tutorial (ICDM-2018 Tutorial)*, Singapore (2018).
2. Gabriel Murray, **Shafiq Joty**, and Giuseppe Carenini., “[NLP for Conversations: Sentiment, Summarization, and Group Dynamics.](#)”, In *Proceedings of the 27th International Conference on Computational Linguistics: Tutorial Abstracts (COLING-2018 Tutorial)*, pages 1-4, Santa Fe, New Mexico, USA (2018).
3. **Shafiq Joty**, Lluís Màrquez and Preslav Nakov., “[Joint Multitask Learning for Community Question Answering Using Task-Specific Embeddings.](#)”, In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2018)*, pages x-x, Brussels, Belgium (2018).
4. **Shafiq Joty**, Tasnim Mohiuddin, and Dat Nguyen (equal contributions), “[Coherence Modeling of Asynchronous Conversations: A Neural Entity Grid Approach](#)”, In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (ACL’18)*, Melbourne, Australia (2018).
5. Firoj Alam, **Shafiq Joty**, and Muhammad Imran., “[Domain Adaptation with Adversarial Training and Graph Embeddings](#)”, In *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (ACL’18)*, Melbourne, Australia (2018).
6. Jiuxiang Gu, **Shafiq Joty**, Jianfei Cai, and Gang Wang, “[Unpaired Image Captioning by Language Pivoting](#)”, In *Proceedings of the European Conference on Computer Vision (ECCV-2018)*, Munich, Germany (2018).

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8. Jiuxiang Gu, Jianfei Cai, **Shafiq Joty**, Li Niu, and Gang Wang, “[Look, Imagine and Match: Improving Textual-Visual Cross-Modal Retrieval with Generative Models](#)”, In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR-2018)*, Salt Lake City, Utah, United States (2018).
9. Chin Yao, Kaiqi Zhao, **Shafiq Joty**, and Gao Cong, “[Aspect-based Neural Recommender](#)”, In *Proceedings of the 27th ACM International Conference on Information and Knowledge Management (CIKM-2018)*, Turin, Italy (2018).
10. Jing Li, Aixin Sun, and **Shafiq Joty**, “[SegBot: A Generic Neural Text Segmentation Model with Pointer Network](#)”, In *Proceedings of the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence (IJCAI-ECAI-2018)*, Stockholm, Sweden (2018).
11. Karan Aggarwal, Swaraj Khadanga, **Shafiq Joty**, Louis Kazaglis, and Jaideep Srivastava, “[A Structured Learning Approach with Neural Conditional Random Fields for Sleep Staging](#)”, In *Proceedings of the IEEE Big Data Conference 2018 (IEEE Big Data-2018)*, Seattle, USA (2018).
12. Muhammad Ebraheem, Saravanan Thirumuruganathan, **Shafiq Joty**, Mourad Ouzzani and Nan Tang, “[Distributed Representations of Tuples for Entity Resolution](#)”, In *Proceedings of the Forty-fourth International Conference on Very Large Data Bases (VLDB-2018)*, Rio de Janeiro, Brazil (2018).
13. Firoj Alam, **Shafiq Joty**, and Muhammad Imran, “[Graph Based Semi-supervised Learning with Convolutional Neural Networks to Classify Crisis Related Tweets](#)”, In *Proceedings of the Twelfth International Conference on Web and Social Media (ICWSM-2018)*, Stanford, United States (2018).

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1. Tanay Kumar Saha, **Shafiq Joty** and Mohammad Al Hasan., “[CON-S2V: A Generic Framework for Incorporating Extra-Sentential Context into Sen2Vec.](#)”, In *Proceedings of the European Conference on Machine Learning and practice of knowledge discovery in databases (ECML-PKDD-2017)*, Macedonia, Skopje (2017).
2. Tanay Kumar Saha, **Shafiq Joty**, Naeemul Hassan, and Mohammad Al Hasan., “[Regularized and Retrofitted models for Learning Sentence Representation with Context.](#)”, In *Proceedings of the 26th ACM International Conference on Information and Knowledge Management (CIKM-2017)*, Singapore (2017).
3. Dat Tien Nguyen and **Shafiq Joty** (co-lead author), “[A Neural Local Coherence Model.](#)”, In *Proceedings of the 55th Annual Meeting of the Association for Computational Linguistics (ACL-2017)*, pages 1320-1330, Vancouver, Canada (2017).

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6. Giovanni Da San Martino, Salvatore Romeo, Alberto Barron-Cedeno, Shafiq Joty, Lluís Màrquez, Alessandro Moschitti and Preslav Nakov., “[Cross-Language Question Re-ranking.](#)”, In *Proceedings of the 40th International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR-2017)*, pages 1145-1148, Tokyo, Japan (2017).
7. Dat Tien Nguyen, Kamla Al-Mannai, **Shafiq Joty**, Hassan Sajjad, Muhammad Imran and Prasenjit Mitra., “[Robust Classification of Crisis-Related Data on Social Networks using Convolutional Neural Networks.](#)”, In *Proceedings of the 11-th International AAAI Conference on Weblogs and Social Media (ICWSM-2017)*, pages 632-635, Montreal, Canada (2017).

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2. **Shafiq Joty**, Lluís Màrquez and Preslav Nakov., “[Joint Learning with Global Inference for Comment Classification in Community Question Answering.](#)”, In *Proceedings of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-2016)*, pages 703-713, San Diego, USA (2016).
3. Nadir Durrani, Hassan Sajjad, **Shafiq Joty**, and Ahmed Abdelali., “[A Deep Fusion Model for Domain Adaptation in Phrase-based MT.](#)”, In *Proceedings of the 26th International Conference on Computational Linguistics (COLING-2016)*, pages 3177–3187, Osaka, Japan (2016).
4. Enamul Hoque, **Shafiq Joty**, Lluís Màrquez, Alberto Barrón-Cedeño, Alessandro Moschitti, Giovanni Da San Martino, Preslav Nakov, Salvatore Romeo and Giuseppe Carenini., “[An Interactive System for Exploring Community Question Answering Forums.](#)”, In *Proceedings of the 26th International Conference on Computational Linguistics (COLING-2016)*, pages 1-5, Osaka, Japan (2016).

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2. **Shafiq Joty**, Alberto Barrón-Cedeño, Giovanni Da San Martino, Alessandro Moschitti, Lluís Màrquez and Preslav Nakov., “[Global Thread-level Inference for Comment Classification in Community Question Answering.](#)”, In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2015)*, pages 573-578, Lisbon, Portugal (2015).

3. Pengfei Liu, **Shafiq Joty**, and Helen Meng., “[Fine-grained Opinion Mining with Recurrent Neural Networks and Word Embeddings.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2015)*, pages 1433-1443, Lisbon, Portugal (2015).
4. Francisco Guzmán, **Shafiq Joty**, Lluís Màrquez, and Preslav Nakov., “[Pairwise Neural Machine Translation Evaluation.](#)”, *In Proceedings of the 53rd annual meeting of the Association for Computational Linguistics (ACL-2015)*, pages 805 -814, Beijing, China (2015).
5. Alberto Barrón-Cedeño, Simone Filice, Giovanni Da San Martino, **Shafiq Joty**, Lluís Màrquez, Preslav Nakov and Alessandro Moschitti., “[Thread-level Information for Comment Classification in Community Question Answering.](#)”, *In Proceedings of the 53rd annual meeting of the Association for Computational Linguistics (ACL-2015)*, pages 687-693, Beijing, China (2015).
6. Nadir Durrani, Hassan Sajjad, **Shafiq Joty**, Ahmed Abdelali and Stephan Vogel., “[Using Joint Models for Domain Adaptation in Statistical Machine Translation.](#)”, *In Proceedings of the Association for Machine Translation in the Americas (AMTA-2015)*, Miami, USA (2015).

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1. **Shafiq Joty**, Alessandro Moschitti., “[Discriminative Reranking of Discourse Parses Using Tree Kernels.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2014)*, pages 2049-2060, Doha, Qatar (2014).
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3. Iman Saleh, Alessandro Moschitti, Preslav Nakov, Lluís Màrquez and **Shafiq Joty.**, “[Semantic Kernels for Semantic Parsing.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2014)*, pages 436-442, Doha, Qatar (2014).
4. Francisco Guzmán, **Shafiq Joty**, Lluís Màrquez, and Preslav Nakov., “[Using Discourse Structure Improves Machine Translation Evaluation.](#)”, *In Proceedings of the 52nd annual meeting of the Association for Computational Linguistics (ACL-2014)*, pages 687-698, Baltimore, USA (2014).
5. Iman Saleh, **Shafiq Joty**, Lluís Màrquez, Alessandro Moschitti, Preslav Nakov, Scott Cyphers and Jim Glass., “[A Study of Using Syntactic and Semantic Structures for Concept Segmentation and Labeling.](#)”, *In Proceedings of the 25th International Conference on Computational Linguistics (COLING-2014)*, pages 193-202, Dublin, Ireland (2014).

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1. **Shafiq Joty**, Giuseppe Carenini, Raymond Ng and Yashar Mehdad., “[Combining Intra- and Multi-sentential Rhetorical Parsing for Document-level Discourse Analysis.](#)”, *In Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics. (ACL-2013)*, pages 486-496, Sofia, Bulgaria (2013).

2. Yashar Mehdad, Giuseppe Carenini, Raymond Ng and **Shafiq Joty**., “[Towards Topic Labeling with Phrase Entailment and Aggregation.](#)”, *In Proceedings of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies. (NAACL-2013)*, pages 179-189, Atlanta, USA (2013).
3. Maryam Tavafi, Yashar Mehdad, **Shafiq Joty**, Giuseppe Carenini, Raymond Ng., “[Dialogue Act Recognition in Synchronous and Asynchronous Conversations.](#)”, *In Proceedings of the 14th Annual Meeting of the Special Interest Group on Discourse and Dialogue. (SIGDIAL-2013)*, pages 117-121, Metz, France. (2013).

2012

1. **Shafiq Joty**, Giuseppe Carenini and Raymond Ng., “[A Novel Discriminative Framework for Sentence-Level Discourse Analysis.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing and the Conference on Natural Language Learning. (EMNLP-2012)*, pages 904-915, Jeju, Korea (2012).

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1. **Shafiq Joty**, Giuseppe Carenini and Chin-Yew Lin., “[Unsupervised Modeling of Dialog Acts in Asynchronous Conversations.](#)”, *In Proceedings of the twenty second International Joint Conference on Artificial Intelligence. (IJCAI-2011)*, pages 1807-1813, Barcelona, Spain (2011).
2. **Shafiq Joty**, Giuseppe Carenini, Gabriel Murray and Raymond Ng., “[Supervised Topic Segmentation of Email Conversations.](#)”, *In Fifth International AAAI Conference on Weblogs and Social Media. (ICWSM-2011)*, pages 530-533, Barcelona, Spain (2011).
3. Nicholas FitzGerald, Giuseppe Carenini, Gabriel Murray and **Shafiq Joty**., “[Exploiting Conversational Features to Detect High-Quality Blog Comments.](#)”, *In Proceedings of the Canadian Conference on Artificial Intelligence (CAI-2011)*, pages 122-127, St. Johns, Newfoundland (2011).

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1. **Shafiq Joty**, Giuseppe Carenini, Gabriel Murray and Raymond Ng., “[Exploiting Conversation Structure in Unsupervised Topic Segmentation for Emails.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing and the Conference on Natural Language Learning. (EMNLP-2010)*, pages 388-398, Massachusetts, USA. (2010).

2009

1. Yllias Chali, Sadid Hasan and **Shafiq Joty**., “[Do Automatic Annotation Techniques Have Any Impact on Supervised Complex Question Answering?](#)”, *In Proceedings of the ACL-IJCNLP 2009 Conference. (ACL-2009)*, pages 329-332, Suntec, Singapore. (2009).
2. Yllias Chali, Sadid Hasan and **Shafiq Joty**., “[A SVM-Based Ensemble Approach to Multi-Document Summarization.](#)”, *In Proceedings of the 22nd Canadian Conference on Artificial Intelligence (CAI-2009)*, pages 329-332, Kelowna, Canada. (2009).
3. Yllias Chali, Sadid Hasan and **Shafiq Joty**., “[Supervised Approaches to Complex Question Answering.](#)”, *In Proceedings of Conference of the Pacific Association for Computational Linguistics (PACLING-2009)*, pages 121-126, Sapporo, Japan. (2009).

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1. Yllias Chali and **Shafiq Joty**., “[Selecting Sentences for Answering Complex Questions.](#)”, *In Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2008)*, pages 304-313, Hawaii, USA. (2008). (I was a co-lead author.)
2. Yllias Chali and **Shafiq Joty**., “[Improving the Performance of the Random Walk Model for Answering Complex Questions.](#)”, *In Proceedings of the 46th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-2008)*, pages 9-12, OH, USA. (2008). (I was a co-lead author.)
3. Yllias Chali and **Shafiq Joty**., “[Exploiting Syntactic and Shallow Semantic Kernels to Improve Random Walks for Complex Question Answering.](#)”, *In Proceedings of the 20th IEEE Int’l Conference on Tools with Artificial Intelligence (ICTAI-2008)*, pages 123-130, OH, USA. (2008). (I was a co-lead author.)
4. Yllias Chali and **Shafiq Joty**., “[Answering Complex Questions Using Query-focused Summarization Technique.](#)”, *In Proceedings of the 20th IEEE Int’l Conference on Tools with Artificial Intelligence (ICTAI-2008)*, pages 131-134, OH, USA. (2008). (I was a co-lead author.)
5. Yllias Chali and **Shafiq Joty**., “[Unsupervised Approach for Selecting Sentences in Query-based Summarization.](#)”, *In Proceedings of the 21st FLAIRS conference (FLAIRS-2007)*, pages 47-52, Florida, USA. (2008). (I was a co-lead author.)
6. Gabriel Murray, **Shafiq Joty**, Giuseppe Carenini and Raymond Ng., “[The University of British Columbia at TAC 2008.](#)”, *In Proceedings of the Text Analysis Conference (TAC-2008)*, Rochester, USA. (2008).
7. Yllias Chali and **Shafiq Joty** and Sadid-Al-Hasan., “[UofL at TAC 2008 Update Summarization and Question Answering.](#)”, *In Proceedings of the Text Analysis Conference (TAC-2008)*, Rochester, USA. (2008).

2007

1. Yllias Chali and **Shafiq Joty**., “[University of Lethbridge’s Participation in DUC-2007 Main Task.](#)”, *In Proceedings of the Document Understanding Conference (DUC-2007)*, Rochester, USA. (2007). (I was a co-lead author.)
2. Yllias Chali and **Shafiq Joty**., “[University of Lethbridge’s Participation in TREC-2007 Main Task.](#)”, *In Proceedings of the Sixteenth Text REtrieval Conference (TREC-2007)*, Gaithersburg, USA. (2007). (I was a co-lead author.)
3. **Shafiq Joty** and Sadid Hasan., “[Advances in Focused Retrieval: A General Review.](#)”, *In Proceedings of the 10th IEEE International Conference on Computer and Information Technology (ICCIT-2007)*, pages 1-5, Dhaka, Bangladesh. (2007).

PEER-REVIEWED WORKSHOP PAPERS

1. Nafise Sadat Moosavi, Angela Fan, Vered Shwartz, Goran Glavas, **Shafiq Joty**, Alex Wang, and Thomas Wolf., “[Proceedings of SustaiNLP: Workshop on Simple and Efficient Natural Language Processing](#)”, *In Proceedings of SustaiNLP Workshop (EMNLP’20 SustaiNLP Workshop)*, Online (2020).

2. Dat Nguyen, **Shafiq Joty**, Basma Boussaha, and Maarten de Rijke., “[Thread Reconstruction in Conversational Data using Neural Coherence Models.](#)”, *In Proceedings of the Neu-IR 2017 SIGIR Workshop on Neural Information Retrieval (NeuIR’17)*, Tokyo, Japan (2017).
3. Alberto Barrón-Cedeño, Giovanni Da San Martino, **Shafiq Joty**, Alessandro Moschitti, Fahad Al-Obaidli, Salvatore Romeo, Kateryna Tymoshenko and Antonio Uva., “[ConvKN at SemEval-2016 Task 3: Answer and Question Selection for Question Answering on Arabic and English Fora.](#)”, *In Proceedings of the 10th International Workshop on Semantic Evaluation. (SemEval 2016)*, San Diego, USA (2016). (2nd place in both English & Arabic subtasks of Task 3)
4. Giovanni Da San Martino, Alberto Barrón-Cedeño, Salvatore Romeo, Alessandro Moschitti, **Shafiq Joty**, Fahad Al-Obaidli, Kateryna Tymoshenko, Antonio Uva and Daniele Bonadiman., “[Addressing Community Question Answering in English and Arabic.](#)”, *In Second WebQA workshop. (SIGIR-WebQA 2016)*, Pisa, Italy (2016).
5. Dat Tien Nguyen, **Shafiq Joty**, Muhammad Imran, Hassan Sajjad, and Prasenjit Mitra., “[Applications of Online Deep Learning for Crisis Response Using Social Media Information.](#)”, *In the 4th International Workshop on Social Web for Disaster Management (co-located with CIKM 2016), (SWDM 2016)*, Indianapolis, USA (2016).
6. Massimo Nicosia, Simone Filice, Alberto Barrón-Cedeño, Iman Saleh, Hamdy Mubarak, Wei Gao, Preslav Nakov, Giovanni Da San Martino, Alessandro Moschitti, Kareem Darwish, Lluís Màrquez, **Shafiq Joty** and Walid Magdy., “[QCRI: Answer Selection for Community Question Answering - Experiments for Arabic and English.](#)”, *In Proceedings of the 9th International Workshop on Semantic Evaluation. (SemEval-2015)*, pages 203-209, Denver, USA (2015). (Winner in Arabic and 3rd place in English subtask of Task 3)
7. **Shafiq Joty**, Francisco Guzman, Lluís Marquez and Preslav Nakov., “[DiscoTK: Using Discourse Structure for Machine Translation Evaluation.](#)”, *In Proceedings of the Ninth Workshop on Statistical Machine Translation (WMT-2014)*, pages 402-408, Baltimore, USA (2014). (Winner of the metric task.)
8. Enamul Hoque, Giuseppe Carenini and **Shafiq Joty.**, “[Interactive Exploration of Asynchronous Conversations: Applying a User-centered Approach to Design a Visual Text Analytic System.](#)”, *In Proceedings of the Workshop on Interactive Language Learning, Visualization, and Interfaces (ILIVI-2014)*, pages 45-52, Baltimore, USA. (2014).
9. Wei Jin, **Shafiq Joty**, Giuseppe Carenini and Raymond Ng., “[Detecting Informative Blog Comments using Tree Structured Conditional Random Fields.](#)”, *The Pacific Northwest Regional NLP Workshop (NWNLP-2012)*, Microsoft Research, Redmond, USA. (2012).
10. **Shafiq Joty**, Giuseppe Carenini, Gabriel Murray and Raymond Ng., “[Finding Topics in Emails: Is LDA enough?](#)”, *NIPS-2009 workshop on applications for topic models: text and beyond. (NIPS-2009)*, Whistler, Canada (2009).
11. Yllias Chali and **Shafiq Joty.**, “[Word Sense Disambiguation Using Lexical Cohesion.](#)”, *In Proceedings of the 4th International Conference on Semantic Evaluations (SemEval-2007)*, pages 476-479, Prague, Czech Republic. (2007).

RESEARCH GRANTS

1. Language Model Adaptation for Low-Resource Languages and Dialects., “Ministry of Education (MOE) Tier-2”, 713,000 SGD (Feb, 2023 – Feb, 2026).
2. NLP for WHO’s Workforce Intelligence., “WHO International”, 375,000 USD (Dec, 2021 – Oct, 2022).
3. Trustworthy and Explainable AI: Text Data Augmentation, Multi-Lingual NLP Generation., “AISG2-PhD-2021-01-001”, 480,000 SGD (Jan, 2021 – Sep, 2025).
4. Inference Capable Natural Language Generation for Conversational AI., “AI.SG 100ER”, 400,000 SGD (Sep, 2021 – Aug, 2023).
5. Zero-shot and few-shot learning for NER with/without a small In-domain KB., “Alibaba-NTU Singapore Joint Research Institute”, 136,104 SGD (Nov, 2020 – Nov, 2021).
6. AI-supported collaborative activity design., “AI.SG 100 Experiments”, 180,665.76 SGD (Apr, 2020 – Sep, 2021).
7. Customised Tamil-English Translation Engine., “Joint Project with A-star”, 149,400 SGD (Sep, 2019 – Apr, 2021).
8. Knowledge Graph Mining for Educational Domain., “Delta-NTU-NRF”, 199,964 SGD (Jan, 2020 – Dec, 2021).
9. Language Understanding and Generation with Deep Neural Networks., “Start Up-Grant (NTU, Singapore)”, 200,000 SGD (Jul, 2017 – Jul, 2020).
10. Multilingual Language Processing Using Generative Adversarial Autoencoders., “Tier-1 program (NTU, Singapore)”, 100,000 SGD (Mar, 2018 - Aug, 2019).
11. A Malay-English Translation System., “SCSE demo fund (NTU, Singapore)”, (Jan, 2018 – Jun, 2018).

TUTORIALS AT INTERNATIONAL CONFERENCES

1. [NLP+Vis: NLP Meets Visualization](#), **Shafiq Joty**, Enamul Haque and Jesse Vig, **EMNLP-2023**, Oklahoma City, USA. ([Slides](#))
2. [NLP4Vis: Natural Language Processing for Information Visualization](#), Enamul Haque and **Shafiq Joty**, **IEEEVis-2022**, Oklahoma City, USA. ([Slides](#))
3. [Discourse Analysis and Its Applications](#), **Shafiq Joty**, Giuseppe Carenini, Raymond Ng, and Gabriel Murray, **ACL-2019**, Florence, Italy. ([Slides](#))
4. [Discourse Processing and Its Applications in Text Mining](#), **Shafiq Joty**, Giuseppe Carenini, Raymond Ng, and Gabriel Murray, **ICDM-2018**, Singapore. ([Slides](#))
5. [NLP for Conversations: Sentiment, Summarization, and Group Dynamics](#), Gabriel Murray, **Shafiq Joty**, and Giuseppe Carenini., **COLING-2018**, Santa Fe, New Mexico. ([Slides](#))

INVITED TALKS

Keynotes at International Conferences/Workshops

1. [“Unleashing the Potential of LLMs through Task and Data Engineering”](#), KAUST Research Conference, Saudi Arabia, Aug. 2023
2. [“Unleashing the Potential of LLMs through Task and Data Engineering”](#), QCRI LLM Seminar, Doha, Qatar, Sep. 2023
3. [“Unleashing the Potential of LLMs through Task and Data Engineering”](#), Taming LLMs workshop @SIGDIAL-23, Prague, Czechia, Sep. 2023
4. [“Unleashing the Potential of LLMs through Task and Data Engineering”](#), Foundations and Applications of Large-scale AI Models (LLMAI workshop at KDD), Aug. 2023
5. [“Model, Task and Data Engineering for NLP”](#), International Conference on Natural Language Processing and Information Retrieval (NLPIR), Dec. 2022

Other Invited Talks

1. [“Unleashing the Potential of LLMs through Task and Data Engineering”](#), VISA Research, Foster City, CA, USA, Nov. 2023
2. “Novel Data and Task Engineering Methods for NLP”, Baidu Research Speaker Series, Baidu Research, May. 2022
3. [“Model, Data and Task Engineering for NLP”](#), University of California Santa Cruz , UCSC seminar, Apr. 2022
4. [“Model, Task and Data Engineering for NLP”](#), Open Data Science Conference (ODSC), APAC Region, Sept. 2021
5. “Model, Task and Data Engineering for NLP”, Tech Talk (Topic AI and NLP) at IIT Roorkee, Hyderabad, BHU, KGP, Delhi, Guwahati, Kanpur, ISM Dhanbad, Salesforce, Aug, 2021
6. “Panel Discussion - Get Started with AI Startups”, International Student Conference On Artificial Intelligence (STCAI, NTU), Aug, 2021,
7. “Model, Task and Data Engineering for NLP”, UBC, Canada, June. 2021
8. “Model, Task and Data Engineering for NLP”, York University, Canada, June. 2021
9. “Model, Task and Data Engineering for NLP”, SEA AI Lab, Singapore, June. 2021
10. [“Model, Task and Data Engineering for NLP”](#), NUS, Singapore, June. 2021
11. “Towards Robust Multi-lingual Multi-dialectal NLP Models”, Alibaba Damo Academy, Singapore, Mar. 2021
12. [“A Rights-Based Approach to the Design and Use of AI”](#), Algorithmic Justice Knowledge Sharing Session,, NBS Communications, Webinar, Nov 2020
13. “NLP Research at NTU-NLP”, Alibaba NTU JRI, Online, Nov. 2020

14. [“Panel Discussions: Ethics in AI”](#), The 2019 Singapore Symposium on Natural Language Processing, SSNLP-2019, Nov. 2019
15. “Discourse Analysis with Deep Learning”, TU-Darmstadt, Germany, July. 2019
16. “Deep Structured Models for Natural Language Processing”, NTU-WeBank Training Program, NTU, Singapore,, Jun. 2019
17. “Deep Structured Models for Natural Language Processing”, IET x MLDA@EEE NLP Workshop, NTU,, NTU, Singapore,, Apr. 2019
18. “Structured Models for Discourse Analysis and NLP Applications ”, Alibaba, Singapore, Jan. 2019
19. [“Deep Structured Models for Natural Language Processing”](#), NTU-SenseTime Research Seminar, NTU, Singapore, Nov. 2018
20. “Deep Structured Models for Natural Language Processing ”, Salesforce AI Research, Palo Alto, USA, Oct. 2018
21. “Deep Learning for Multilingual and Multimodal Processing”, DSO National Laboratories, Singapore, Oct. 2018
22. [“Deep Learning for Multilingual and Multimodal Processing”](#), Industry-NTU Dialogue: AI Research, Innovation and Talent, NTU, Singapore, Sep. 2018
23. “Discourse Analysis and Its Applications”, Gwangju Institute of Science and Technology (GIST), South Korea, Dec. 2017
24. “How Computational Linguistics can help Computational History”, Johannesburg Institute for Advanced Study (JIAS), Johannesburg, South Africa, Nov. 2017
25. “Discourse Analysis and Its Applications”, National University of Singapore (NUS), Singapore, Oct. 2017
26. “Discourse Analysis and Its Applications”, Institute for Infocomm Research A*Star, Singapore, Sep. 2017
27. [“Structured Predictions for Discourse Analysis and Applications in Natural Language Processing”](#), Singapore University of Technology and Design (SUTD), Singapore, Sep. 2017
28. “Structured Predictions for Discourse Analysis and Applications in Natural Language Processing”, University of Calgary, Calgary, Canada, Mar. 2017
29. “Structured Predictions for Discourse Analysis and Applications in Natural Language Processing”, University of Waterloo, Waterloo, Canada, Feb. 2017
30. “Structured Predictions for Discourse Analysis and Applications in Natural Language Processing”, Nanyang Technological University (NTU), Singapore, Nov. 2016
31. “Introduction to Machine Learning”, Global Entrepreneurship Week, Doha, Nov. 2015
32. “Discourse Analysis & its Applications”, Chinese University of Hong Kong., Oct. 2015

33. “CODRA: A Complete Discriminative Framework for Rhetorical Analysis”, Universite Paul Sabatier, Toulouse, France., Sep. 2014
34. “Discourse Analysis of Asynchronous Conversations”, University of British Columbia, Vancouver, Canada., Dec. 2013
35. “Intra- and Multi-sentential Rhetorical Parsing for Document-level Discourse Analysis”, NSERC Business Intelligence Network AGM, IBM Software Labs, Canada., Nov. 2012
36. “A Novel Discriminative Framework for Sentence-Level Discourse Analysis”, NW-NLP workshop, Microsoft Research Redmond., May, 2012
37. “Discourse Analysis of Asynchronous Conversations (e.g., emails, blogs)”, Business Intelligence (BI) Workshop-NSERC BIN Watson, IBM Watson center, Feb, 2012
38. “Discourse Analysis of Asynchronous Conversations (e.g., emails, blogs)”, UBC Social Network Group, Feb, 2012
39. “Unsupervised Modeling of Dialog Acts in Asynchronous Conversations”, UBC Laboratory for Computational Intelligence (LCI) Forum Talk, Apr, 2011
40. “Topic and Dialog Act Modeling of Asynchronous Conversations”, Microsoft Research Asia, Nov, 2010
41. “What are they talking about?” Finding Topics in Email Conversations”, UBC Laboratory for Computational Intelligence Forum (LCI) Talk, Feb, 2010
42. “Answering Simple and Complex Questions”, University of Alberta NLP Group, Jan, 2008

SERVICE

1. **PC co-chair:** SIGDIAL-2023
2. **Best paper award committee:** NAACL-22, ICLR-23
3. **Senior area chair:** [EMNLP-2023](#) (Discourse) [ACL-2022](#) (ML), [EMNLP-2021](#) (Applications)
4. **Area chair:** [ICLR-2024](#) (NLP), [NeurIPS-2023](#) (NLP), [ICLR-2023](#) (NLP), [ACL-2023](#) [EMNLP-2022](#) (Discourse), [COLING-2022](#) (Discourse), [ACL-2021](#) (ML), [ACL-2020](#) (Discourse), [NAACL-2021](#) (Discourse), [ACL-2019](#) (QA), [EMNLP-2019](#) (Discourse)
5. **Action editor:** [ACL rolling review](#) [2021 - present]
6. **Associate editor:** ACM Transactions on Asian and Low Resource Language Resource language Processing (TALLIP) [Jan 2020, Feb 2021]
7. **Senior Program Committee member:** [IJCAI-2019](#), AAI-2020
8. **Journal/Conference Reviewing:** TACL [2015-2019], ACL/EMNLP/SigDial/*SEM/NAACL/IJCAI/TUI/K [2008 - present]
9. **Grant Proposal Reviewing:** [NSERC Canada Discovery Grant](#) [2018], Israel Science Foundation (ISF) [2021].

10. Organizing committee member of EMNLP-2014, ICCIT-2005.
11. Associate VP position in the Bangladesh Students' Association, UBC (2009-2010).

PROFESSIONAL MEMBERSHIP

- ACL, SIGDAT, SIGGEN, SIGSEM, ACM, IEEE.

STUDENTS

• Current PhD Students

1. [Li Xingxuan](#) [Aug, 2021 - Present, EDB IPP]
2. [Esther \(Ruochen\) Zhao](#) [Jan, 2021 - Present, AISG Fellowship]
3. [Mathieu Ravaut](#) [Jan, 2021 - Present, A*Star RSS-SINGA fellowship]
4. [Chen Hailin](#) [Jan, 2021 - Present, Salesforce IPP NTU]
5. [Chengwei Qin](#) [Jan, 2021 - Present, NTU Graduate Scholarship]
6. [Bosheng Ding \(co-supervision\)](#) [Jan, 2020 - Present]

• Graduated Students (PhD)

1. [Nguyen Thanh Tung](#) [Aug, 2017 - Jul, 2021]
First Employment: Research Scientist, I2R A-star, Singapore
PhD Thesis: "Pointing Network for Natural Language Understanding"
2. [Tasnim Mohiuddin](#) [Jan, 2018 - Dec, 2021]
First Employment: NLP Researcher, Huawei Research Center, Singapore
PhD Thesis: "Neural Machine Translation with Limited Resources" (1st runner up for best thesis award 2022 - 2023)
3. [Samson Tan \(industry advisor\)](#) [Aug, 2019 - Mar, 2022, Salesforce IPP NUS] **NUS Dean's Research Excellence Award 2021, Research Achievement Award, 2020**
First Employment: Applied Scientist at AWS AI Research Education, Santa Clara, USA
PhD Thesis: "Linguistically-inclusive Natural Language Processing"
4. [Prathyusha Jwalapuram](#) [Aug, 2018 - Jul, 2022] **A*STAR International Fellowship (AIF)**
First Employment: Research Scientist, Rakuten, Singapore
PhD Thesis: "Building Generalizable Models for Discourse Phenomena Evaluation and Machine Translation"
5. [Saiful Bari](#) [Jan, 2019 - Dec, 2022] **NTU Graduate Scholarship**
First Employment: Senior Research Scientist, Saudi Data & AI Authority (SDAIA), KSA
PhD Thesis: "Transfer Learning for Language Model Adaptation"

6. [Lin Xiang](#) [Jan, 2019 - Dec, 2022]
First Employment: Quantitative/NLP Researcher, GIC, Singapore
PhD Thesis: “Natural Language Processing as Autoregressive Generation”
7. [Han-Cheol Moon](#) [PhD, Aug, 2019 - Jul, 2023] [SINGA-SINGA fellowship](#)
First Employment: ML engineer, Samsung Research, South Korea
PhD Thesis: “Toward Robust Natural Language Systems”
8. [Linlin Liu \(co-supervision\)](#) [PhD, Jan, 2019 - Dec, 2022] [Alibaba-NTU IGS fellowship](#)
First Employment: Data Scientist, Cubist Systematic Strategies, Singapore
PhD Thesis: “Towards Robust Natural Language and Image Processing in Low-Resource Scenarios”
9. [Xuan Phi Nguyen](#) [PhD, Aug, 2019 - Mar, 2023] [SDSC dissertation fellowship, A*STAR ACIS fellowship](#)
First Employment: Research Scientist (Ali Star), DAMO Academy, Alibaba, Singapore
PhD Thesis: “Improving Neural Machine Translation: Data Centric Approaches”

• Undergraduate FYP Students

1. [Do Xuan Long](#) (URECA FYP) [Aug, 2021 - Jul, 2023] Outstanding Undergraduate Award [[Outstanding Undergraduate Award](#); Current Position: PhD student @NUS]
2. [Han Simeng](#) [Mar, 2019 - Jul, 2021] [[Best Final Year Thesis Gold Medal](#); Current Position: PhD student in CS @ Yale University, USA]
3. Shen Youlin [Mar, 2020 - Dec, 2020]
4. Rixie Tiffany Ko Leong [Jan, 2021 - Dec, 2021]
5. Angshuk Dutta [Aug, 2021 - Mar, 2022]

• Visiting Students

1. [Sameer Khurana](#) [May, 2018 - Aug, 2018]. (Now PhD student at MIT-CSAIL, USA)
2. [Jing MA](#) [Dec, 2018 - Aug, 2019]. (Now Asst Prof at Hong Kong Baptist University)
3. Lingzhi Wang [Aug 2021 - Nov 2021] (Now a PhD student at HKUST, Hong Kong)
4. [Enamul Hoque](#) [Feb, 2016 - May, 2016] (Now Asst. Prof. at York Univ, Canada)
5. [Aarti Sathyanarayana](#) [July, 2016 - Dec, 2016] (Now Asst Prof at Northeastern University, USA)

REFERENCES

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