

PERSONAL INFORMATION

SHAMMUR ABSAR CHOWDHURY

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ACADEMIC EXPERTISE AND RESEARCH INTEREST

Gender Female | Date of birth 20 August 1989 | Nationality Bangladeshi

Artificial Intelligence – Speech Signal Processing, Atypical Interaction, Non-Verbal Communication, Human-Machine Interaction, Applied Deep/Machine Learning and Natural Language Processing

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Member, **IEEE**, since 2009; Member, **ACM**, since 2009; Member, **ISCA** (International Speech Communication Association) since 2013; Member, **ACL** (Association for Computational Linguistics) since 2018.

EDUCATION

November 2012 – April 2017 **PhD** in Information and Communication Technology

University of Trento, Italy

Thesis Title: “[Computational Modeling of Turn-Taking Dynamics in Spoken Conversations](#)”.

Supervisor: Prof. Giuseppe Riccardi, University of Trento, Italy

January 2007 – February 2011 **Bachelor of Science in Electronics and Communication Engineering**
with 2nd major in
Bachelor of Science in Computer Science

BRAC University, Bangladesh

CGPA: 3.97/4.0 (*Gold medalist and Valedictorian for getting highest CGPA among all University Graduates, 2011*).

Thesis Title: “[Implementation of Speech Recognition System in Bangla](#)”.

Supervisor: Prof. Mumit Khan, BRAC University, Bangladesh

RESEARCH WORK EXPERIENCE

May 2019 – Present **Postdoctoral Researcher**

Qatar Computing Research Institute, HBKU, Qatar

- Design different speech modules including self-supervised dialectal models, end-to-end dialect identification, dialectal and code-switching speech recognition models, speaker recognition among others.
- Interpretability of speech models
- Design multi-label short text classification for topic extraction (English and Arabic)
- Design prediction model for offensive language detection (English and Arabic)

May 2019 – April 2021 **Research Fellow**

Center for Mind/Brain Sciences, University of Trento, Trento, Italy

- Interpretability of language model representation for rare linguistic phenomena
- Simulation and interpretation of ‘online’ vs ‘off-line’ processing of sentences by human using transformer models.

September 2017 – April 2019 **Postdoctoral Researcher**

Center for Mind/Brain Sciences, University of Trento, Trento, Italy

- Simulation of grammaticality judgements using Deep Neural Network models
- Artificial production and corrections of ungrammatical scenarios.

November 2012 – April 2017 **PhD Researcher**

Signals and Interactive Systems Lab, SIS Lab, University of Trento, Trento, Italy

- Modeling turn-taking behavior and discourse of overlap and silence in spoken conversations (using acoustic and lexical information).
- Modeling automatic conversation flow facilitator and information profiler for call-center data analytics system.
- Extraction of non-verbal features for para-semantic prediction
<http://www.sensei-conversation.eu>.
- Cross-Language Annotation porting using crowdsourcing platform
<http://www.portdial.eu>.
- Automatic Speech Recognition (ASR) system for dyadic conversation – Italian language.

March 2012 – October 2012 **Research Assistant**

SIS Lab, University of Trento, Trento, Italy

- Automatic Speech Recognition (ASR) for Italian language using LUNA spoken dialog corpus.

October 2010 – February 2012 **Senior Research Assistant**

Center for Research on Bangla Language Processing (CRBLP), Department of Computer Science and Engineering

BRAC University, Dhaka Bangladesh

- Developed a new voice for existing Bangla Text to Speech (TTS) – Katha;
- Developed a newspaper speech corpus
<https://sourceforge.net/projects/blp>.

TEACHING EXPERIENCE

January 2011 – February 2012 **Lecturer**

Department of Computer Science and Engineering
BRAC University, Dhaka Bangladesh

Courses Taken: Introduction to Computer Science, Programming Language I and II, Numerical Methods, Electronic Device II.

October 2008 – August 2010 **Teaching Assistant**

Department of Computer Science and Engineering
BRAC University, Dhaka Bangladesh

Assisted Courses: Programming Language I. Programming Language II.

RECENT RESEARCH/PROFESSIONAL ACTIVITIES

Scientific Articles reviewer (selected)

Speech: ICASSP, INTERSPEECH, Compute Speech and Language, Speech Communication, The Journal of the Acoustical Society of America

NLP: ACL, COLING, NAACL, EMNLP, Language Resources and Evaluation, ACM Transactions on Asian and Low-Resource Language Information Processing

Events (selected)

SemEval2022 Task 3: Presupposed Taxonomies - Evaluating Neural-network Semantics (Pre-TENS)

Working Meeting on the revision of ISO 24617-2 standard for dialogue act annotation, Tilburg University, Netherlands, 2018, 2019.

SELECTED PROJECTS

- **ArabicSpeech:** ArabicSpeech is a community that runs for the benefit of Arabic Speech Science and to push the boundaries for Arabic speech to make it world-class technology. <https://arabicspeech.org/>.
- **APG:** Automatic Persona Generation (Social Computing, QCRI). <https://persona.qcri.org/>.
- **TREiL:** Technologies for Research and Education in Linguistics –Linguistic between Theory and Machine Learning and Distributional Semantics: Going Multilingual (PRIN, MUR funded project). <https://github.com/LiCo-TREiL/Computational-Ungrammaticality>.
- **SENSEI:** Making Sense of Human - Human Conversation (EU funded project) <http://www.sensei-conversation.eu>.
- **PortDial:** Language Resources for Portable Multilingual Spoken Dialogue Systems (EU funded project), <http://www.portdial.eu>.
- **BNLP:** - Building resources for Bangla Language Computing. The project include creating Bangla Content Annotation Bank, ASR, TTS-voice, speech and text corpus, Sentiment Analytics among others. <https://banglanlp.org>.
- **Speech Recognition System:** Improving and implementing speech recognition system for Italian language.
- **Voice Creation for Bangla Text To Speech:** Designing a voice for existing Bangla TTS system.
- **Designing Bangla Speech Corpus:** Developed a speech corpus for both TTS and ASR.

PUBLICATIONS

2021

[1] Shammur Absar Chowdhury, Nadir Durrani, and Ahmed Ali. What do end-to-end speech models learn about speaker, language and channel information? a layer-wise and neuron-level analysis. *arXiv preprint arXiv:2107.00439 (Under review - CSL)*, 2021

[2] Shammur Absar Chowdhury, Amir Hussein, Ahmed Abdelali, and Ahmed Ali. Towards One Model to Rule All: Multilingual Strategy for Dialectal Code-Switching Arabic ASR. In *INTER-SPEECH*, 2021

[3] Ahmed Ali, Shammur Chowdhury, Amir Hussein, and Hifny Yasser. Arabic Code-Switching Speech Recognition using Monolingual Data. In *INTER-SPEECH*, 2021

[4] Hamdy Mubarak, Amir Hussein, Shammur Absar Chowdhury, and Ahmed Ali. QASR: QCRI Aljazeera Speech Resource. A Large Scale Annotated Arabic Speech Corpus. In *ACL*, 2021

- [5] Ahmed Ali, Shammur Chowdhury, Mohamed Afify, Wassim El-Hajj, Hazem Hajj, Mourad Abbas, Amir Hussein, Nada Ghneim, Mohammad Abushariah, and Assal Alqudah. Connecting Arabs: bridging the gap in dialectal speech recognition. *Communications of the ACM*, 64(4):124–129, 2021. Publisher: ACM New York, NY, USA
- [6] Firoj Alam, Arid Hasan, Tanvir Alam, Akib Khan, Jannatul Tajrin, Naira Khan, and Shammur Absar Chowdhury. A review of bangla natural language processing tasks and the utility of transformer models. *arXiv e-prints*, pages arXiv–2107, 2021
- [7] Amir Hussein, Shammur Chowdhury, and Ahmed Ali. KARI: KANari/QCRI's End-to-End systems for the INTERSPEECH 2021 Indian Languages Code-Switching Challenge. *arXiv preprint arXiv:2106.05885*, 2021
- [8] Joni Salminen, Soon-Gyo Jung, Shammur Chowdhury, Dianne Ramirez Robillos, and Bernard Jansen. The ability of personas: An empirical evaluation of altering incorrect preconceptions about users. *International Journal of Human-Computer Studies*, 153:102645, 2021. Publisher: Academic Press
- [9] Bernard J Jansen, Soon-gyo Jung, Shammur A Chowdhury, and Joni Salminen. Persona analytics: Analyzing the stability of online segments and content interests over time using non-negative matrix factorization. *Expert Systems With Applications*, 185:115611, 2021
- 2020**
- [10] Shammur Absar Chowdhury, Ahmed Ali, Suwon Shon, and James Glass. What does an end-to-end dialect identification model learn about non-dialectal information? In *INTER-SPEECH*, 2020
- [11] Shammur Absar Chowdhury, Younes Samih, Mohamed Eldesouki, and Ahmed Ali. Effects of dialectal code-switching on speech modules: A study using egyptian arabic broadcast speech. In *INTER-SPEECH*, 2020
- [12] Shammur Absar Chowdhury, Hamdy Mubarak, Ahmed Abdelali, Soon-gyo Jung, Bernard J Jansen, and Joni Salminen. A multi-platform arabic news comment dataset for offensive language detection. In *Proceedings of The 12th Language Resources and Evaluation Conference*, pages 6203–6212, 2020
- [13] Shammur Absar Chowdhury, Ahmed Abdelali, Kareem Darwish, Soon-gyo Jung, Joni Salminen, and Bernard J Jansen. Improving arabic text categorization using transformer training diversification. In *WANLP (COLING)*
- [14] Joni Salminen, Soon-Gyo Jung, Shammur Chowdhury, Sercan Sengün, and Bernard J Jansen. Personas and analytics: A comparative user study of efficiency and effectiveness for a user identification task. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–13, 2020
- [15] Joni Salminen, Maximilian Hopf, Shammur A Chowdhury, Soon-gyo Jung, Hind Almerekhi, and Bernard J Jansen. Developing an online hate classifier for multiple social media platforms. *Human-centric Computing and Information Sciences*, 10(1):1, 2020
- [16] Joni Salminen, Kathleen Guan, Soon-Gyo Jung, Shammur A Chowdhury, and Bernard J Jansen. A literature review of quantitative persona creation. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–14, 2020
- [17] Md Hasan, Jannatul Tajrin, Shammur Absar Chowdhury, Firoj Alam, et al. Sentiment classification in bangla textual content: A comparative study. *arXiv preprint arXiv:2011.10106*, 2020
- [18] Joni Salminen, Rohan Gurunandan Rao, Soon-gyo Jung, Shammur A Chowdhury, and Bernard J Jansen. Enriching social media personas with personality traits: A deep learning approach using the big five classes. In *International Conference on Human-Computer Interaction*, pages 101–120. Springer, Cham, 2020
- [19] Joni Salminen, Soon-gyo Jung, Shammur A Chowdhury, and Bernard J Jansen. Rethinking personas for fairness: Algorithmic transparency and accountability in data-driven personas. In *International Conference on Human-Computer Interaction*, pages 82–100. Springer, Cham, 2020

- [20] Sabit Hassan, Younes Samih, Hamdy Mubarak, Ahmed Abdelali, Ammar Rashed, and Shammur Absar Chowdhury. Alt submission for osact shared task on offensive language detection. In *Proceedings of the 4th Workshop on Open-Source Arabic Corpora and Processing Tools, with a Shared Task on Offensive Language Detection*, pages 61–65, 2020
- [21] Joni Salminen, Soon-gyo Jung, João M Santos, Shammur Chowdhury, and Bernard J Jansen. The effect of experience on persona perceptions. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–9, 2020
- [22] Soon-Gyo Jung, Joni Salminen, Shammur A Chowdhury, Dianne Ramirez Robillos, and Bernard J Jansen. Things change: Comparing results using historical data and user testing for evaluating a recommendation task. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–7, 2020
- [23] Joni Salminen, Soon-gyo Jung, Shammur Chowdhury, and Bernard J Jansen. Analyzing demographic bias in artificially generated facial pictures. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–8, 2020
- [24] Joni Salminen, Jukka Vahlo, Aki Koponen, Soon-Gyo Jung, Shammur A Chowdhury, and Bernard J Jansen. Designing prototype player personas from a game preference survey. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–8, 2020
- [25] Joni Salminen, Willemien Froneman, Soon-gyo Jung, Shammur Chowdhury, and Bernard J Jansen. The ethics of data-driven personas. In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*, pages 1–9, 2020

2019

- [26] Shammur Absar Chowdhury and Roberto Zamparelli. An lstm adaptation study of (un)grammaticality. In *Proceedings of the ACL 2019 – BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP, ACL*, 2019
- [27] Shammur Absar Chowdhury, Evgeny A Stepanov, Morena Danieli, and Giuseppe Riccardi. Automatic classification of speech overlaps: Feature representation and algorithms. *Computer Speech & Language*, 55:145–167, 2019

2018

- [28] Shammur Absar Chowdhury, Firoj Alam, and Naira Khan. Towards bangla named entity recognition. In *2018 21st International Conference of Computer and Information Technology (ICCIT)*, pages 1–7. IEEE, 2018
- [29] Evgeny Stepanov, Stephane Lathuiliere, Shammur Absar Chowdhury, Arindam Ghosh, Radu-Laurentiu Vieriu, Nicu Sebe, and Giuseppe Riccardi. Depression severity estimation from multiple modalities. In *20th International Conference on e-Health Networking, Applications and Services (Healthcom)*, IEEE, 2018
- [30] Shammur Absar Chowdhury and Roberto Zamparelli. Rnn simulations of grammaticality judgments on long-distance dependencies. In *Proceedings of the 27th International Conference on Computational Linguistics (COLING)*, pages 133–144, 2018
- [31] Evgeny A. Stepanov, Shammur Absar Chowdhury, Ali Orkan Bayer, Arindam Ghosh, Ioannis Klasinas, Marcos Calvo, Emilio Sanchis, and Giuseppe Riccardi. Cross-language transfer of semantic annotation via targeted crowdsourcing: Task design and evaluation. *Language Resources and Evaluation Journal*, 2018

2017

- [32] Shammur Absar Chowdhury, Evgeny Stepanov, Morena Danieli, and Giuseppe Riccardi. Functions of silences towards information flow in spoken conversation. In *Proceedings of the Workshop on Speech-Centric Natural Language Processing, EMNLP*, pages 1–9, Copenhagen, Denmark, 2017
- [33] Shammur Absar Chowdhury, Firoj Alam, Naira Khan, and Sheak RH Noori. Bangla grapheme to phoneme conversion using conditional random fields. In *Proc. of 20th International Conference on Computer and Information Technology (ICCIT)*, pages 1–6. IEEE, 2017
- [34] Shammur Absar Chowdhury and Giuseppe Riccardi. A deep learning approach to modeling competitiveness in spoken conversation. In *Proc. of International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, 2017

2016

- [35] Firoj Alam, Shammur Absar Chowdhury, Morena Danieli, and Giuseppe Riccardi. How interlocutors coordinate with each other within emotional segments? In *Proc. of COLING: International Conference on Computational Linguistics (COLING)*, 2016
- [36] Firoj Alam, Shammur Absar Chowdhury, and Sheak Rashed Haider Noori. Bidirectional lstms—crfs networks for bangla pos tagging. In *Proc. of 19th International Conference on Computer and Information Technology (ICCIT)*, pages 377–382. IEEE, 2016
- [37] Shammur Absar Chowdhury, Evgeny Stepanov, and Giuseppe Riccardi. Predicting user satisfaction from turn-taking in spoken conversations. In *Proc. of 17th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, 2016
- [38] Shammur Absar Chowdhury, Evgeny A. Stepanov, and Giuseppe Riccardi. Transfer of corpus-specific dialogue act annotation to iso standard: Is it worth it ? In *Proc. of LREC*, 2016
- [39] Giuseppe Riccardi, Evgeny A Stepanov, and Shammur Absar Chowdhury. Discourse connective detection in spoken conversations. In *Proc. of International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, pages 6095–6099. IEEE, 2016

2015

- [40] E Stepanov, Benoit Favre, Firoj Alam, S Chowdhury, Karan Singla, Jeremy Trione, Frederic Béchet, and Giuseppe Riccardi. Automatic summarization of call-center conversations. In *Proc. of the IEEE Automatic Speech Recognition and Understanding Workshop (ASRU 2015)*, 2015
- [41] Shammur Absar Chowdhury, Morena Danieli, and Giuseppe Riccardi. The role of speakers and context in classifying competition in overlapping speech. In *Proc. of 16th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, 2015
- [42] Shammur Absar Chowdhury, Marcos Calvo, Arindam Ghosh, Evgeny A. Stepanov, Ali Orkan Bayer, Giuseppe Riccardi, Fernando García, and Emilio Sanchis. Selection and aggregation techniques for crowdsourced semantic annotation task. In *Proc. of the 16th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, pages 2779–2783, Dresden, Germany, September 2015
- [43] Shammur Absar Chowdhury, Morena Danieli, and Giuseppe Riccardi. Annotating and categorizing competition in overlap speech. In *Proc. of International Conference on Acoustics, Speech and Signal Processing (ICASSP)*. IEEE, 2015

2014

- [44] Shammur A. Chowdhury, Giuseppe Riccardi, and Firoj Alam. Unsupervised recognition and clustering of speech overlaps in spoken conversations. In *Proc. of Workshop on Speech, Language and Audio in Multimedia*, 2014
- [45] Shammur Absar Chowdhury, Arindam Ghosh, Evgeny A. Stepanov, Ali Orkan Bayer, Giuseppe Riccardi, and Ioannis Klasinas. Cross-Language Transfer of Semantic Annotation via Targeted Crowdsourcing. In *Proc. of 15th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, Singapore, September 2014

2013

- [46] Giuseppe Riccardi, Arindam Ghosh, Shammur Absar Chowdhury, and Ali Orkan Bayer. Motivational Feedback in Crowdsourcing: A Case Study in Speech Transcription. In *Proc. of the 14th Annual Conference of the International Speech Communication Association (INTERSPEECH)*, pages 1111–1115, Lyon, France, August 2013

2011

- [47] S. M. Murtoza Habib, Firoj Alam, Rabia Sultana, Shammur Absar Chowdhury, and Mu-mit Khan. Phonetically balanced bangla speech corpus. In *Proc. of Conference on Human Language Technology for Development (HLTD)*, Egypt, 2011

AWARDS

- NVIDIA Grant to support research on *RNN-based Artificial Grammaticality to Probe Language Universals*, 2018.
- ISCA Grant for Interspeech 2014
- University Grant for doctoral program, cycle-28, Ranked 3rd, University of Trento
- Education Study Grant – during Internship, on March 2012 to October 2012.
- Achieved Chancellor’s Gold Medal and also became Valedictorian for year 2010 (BRAC University 6th Convocation) for highest CGPA among all University Graduates.
- Achieved Vice-Chancellor’s Gold Medal for year 2010 (BRAC University 6th Convocation) for highest CGPA from Electronic and Communication Engineering Department
- Achieved a place in Vice-Chancellor’s List in Spring 2008, Summer 2008, Fall 2008, Spring 2009, Summer 2009, Fall 2009, Spring and Summer 2010.
- Achieved the Vice-Chancellor’s Special Recognition Award for high standard of discipline and achievement, during Residential Semester, Summer 2007.
- Have achieved performance-based scholarship throughout 4-years of Undergraduate.

PERSONAL SKILLS

Mother tongue Bangla

Other languages

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---------|---------------|---------|--------------------|-------------------|---------|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | C2 | C2 | C2 | C2 | C1 |
| Italian | A1 | A2 | A1 | A1 | A1 |

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
[Common European Framework of Reference for Languages](#)

ADDITIONAL INFORMATION

Reference Will be available upon request.