Brian R. Yan

M.S. in AI, Language Technologies Institute at Carnegie Mellon University

Brian is interested in speech and language processing with current projects in speech translation, multilingual and low-resource ASR, and spoken language understanding. Before focusing on language technologies and academia, Brian was a strategy consultant with a degree in economics and computer science from the University of Chicago.

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Education

M.S. Artificial Intelligence & Innovation, 3.9/4.0, *Carnegie Mellon University*, 2019-2021

B.A. Economics with Computer Science Minor, 3.7/4.0, *University of Chicago*, 2012-2016

Recent Projects

End-to-End Speech Translation, *Research Advised by Shinji Watanabe (JHU/CMU),* 2020

- Achieved state-of-the-art speech translation performance with a +6 BLEU improvement on the Fisher-CallHome corpus. This work is currently under peer-review in a long paper submission.
- Generalized the speech translation approach to any decomposable sequence task by also showing results on ASR tasks with intermediate phoneme, character, and token states

Multilingual Low-Resource ASR, *Research Advised by Shinji Watanabe (JHU/CMU)*, 2020

- Currently constructing a universal phone-based lexicon through multilingual end-to-end speech recognition. This work is motivated by the language-specific nature of phoneme-based lexica.
- Devising methods to use phone pronunciations and confusion information for identifying accent / dialect differences within a language as well as phonetic similarities across languages

Embedded Acoustic Model Inference, *Acoustic Modeling Team at SoundHound Inc.*, Summer 2020

- Demonstrated the viability of acoustic model inference on digital signal processors (DSP) by integrating the Snapdragon SDK with SoundHound's tech on an embedded automotive board
- This summer project was succeeded by a new production-level deployment of CNN-based acoustic models on DSPs for an automotive client interested in non-GPU based solutions

Automating Voice Response, *Sponsored Capstone Advised by Michael Shamos (CMU)*, 2020

- Currently working on automation of patient benefits investigation through dynamic IVR bots that handle bot-to-bot information exchange. This project is sponsored by Walla Technologies.

Preprints

Under Peer-Review

Anonymized, "Intermediate Search for End-to-End Speech Translation", *Long Paper Submitted to NAACL-HLT'21 (under different title),* 2021

In Preparation

Brian Yan, Siddharth Dalmia, Shinji Watanabe, "Universal Phone Lexicon with a Two-Stage Multilingual Approach", *Targeting Interspeech'21,* 2021

Awards & Stipends

James R. Swartz Entrepreneurial Fellow, *Awarded by Carnegie Mellon University*, 2020

- Stipend and mentorship for graduate students demonstrating entrepreneurial potential

All-Conference Student Athlete, *Awarded by the University Athletic Association (UAA)*, 2012-2016

- 4x recipient as a Division III swimmer for high athletic and academic achievement

General Honors in Economics and Dean's List Award, *Awarded by University of Chicago*, 2016

Technical Talks

Brian Yan, "Using Digital Signal Processors for Fast and Lightweight Acoustic Model Inference", *SoundHound Inc. Tech-Talk*, 2020

Non-Refereed Reports

Brian Yan, Daniel Chang, "Neural Abstractive Summarization of Scientific Documents", 2020

Brian Yan, Kiran Prasad, Zach Kitowski, Senzeyu Zhang, "Adversarial Robustness through Volumetric Loss Functions", 2020

Qinlan Shen, Tushar Kanakagiri, **Brian Yan**, "Unsupervised Identification and Tracking of Fine-Grained Political Factions", 2020

Brian Yan, Brandon Garcia, Arvind Iyengar, Hannah Kenagy, Cara LoPiano, Madhav Seth, "The Future of Solar Energy in the US: A Technological, Political and Financial Enquiry", 2015

Employment History

2020: SoundHound Inc., Machine Learning Intern

2016-2019: Accenture, Technology Strategy Consultant

Brian joined Accenture as an analyst and was quickly promoted to Technology Strategy Consultant. He developed an expertise in large-scale digital transformations due to his broad proficiency with the technological, financial, and organizational components of a successful strategy. He served CEO, CIO, and CTO clients across multiple communications, media, and technology industries:

- Digital Supply Chain Architecture Project, *Media and Entertainment Client*
- Joint Initiative, *Semiconductor Client*
- IT Strategy and Architecture for Omnichannel Transformation Project, *Telecommunications Client*
- Digital Architecture Governance Project, *Telecommunications Client*
- Network Deployment Data Foundation Project, *Telecommunications Client*
- Cloud Storage Strategy Project, *Insurance Client*
- IT Cost Reduction Project, *High-End Retail Client*

2015: Bank of Montreal, Foreign Exchange Trading Intern

2014: Guard Capital Management, Research Analyst Intern

2013: American Express OPEN, Business Analyst Intern

2012: DIA Associates, iOS Developer Intern