Matthew Wiesner

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RESEARCH INTERESTS

I am broadly interested in speech processing with an emphasis on multilinguality. I have worked on and am interested in applications in automatic speech recognition, speech translation, keyword search, topic identification from speech, voice anonymization, language identification, and multi-talker ASR. I have helped develop and contributed to a number of open-source speech processing tools including Kaldi, ESPnet, Fairseq, and Lhotse.

EDUCATION

Johns Hopkins University   Oct 2021
Ph.D. Electrical Engineering
Johns Hopkins University   May 2016
Masters Engineering, Electrical
McGill University   Dec 2013
B.Eng Electrical Engineering / Minor in Arabic Language

EXPERIENCE

Research Scientist at Johns Hopkins University HLTCOE   March 2021 - Present
Graduate Student Research Assistant at Johns Hopkins   Sep 2014 - Oct 2021
Intern at Facebook AI Research   Spring 2019
Teaching Assistant – Machine Learning for Signal Processing (Johns Hopkins)   Fall 2016
Grader – Representation Learning   Fall 2015

GRANTS AND AWARDS

DARPA Anonymous real-time speech (ARTS) Testing and Evaluation   2024

CHiME-8 Jury Prize Award   2024

VoicePrivacy Challenge Best Paper   2024

Interspeech MUCS ASR Challenge Winner   2021

Best Student Paper Interspeeech: Multi-modal Data Augmentation   2018

OTHER ACTIVITIES & COMMUNITY SERVICE

CHiME-7/8 Task 1 (Distant Automatic Speech Recognition) Co-Organizer   2022-2024

IWSLT Low-Resource Multilingual Speech Translation Track Co-Organizer   2021

IWLST Dialectal Speech Translation Track Co-Organizer   2022

Area Chair Speech and Multimodality EMNLP   2023

Reviewer IEEE, ICASSP, Interspeech, SLT, ACL, COLING, CHiME   2021-present

Co-Organizer for the HLTCOE SCALE Speech Translation Workshop   Summer 2023

Guest Lecturer (Graduate-level course, Machine Learning for Signal Processing):   2017-2022
Linear Algebra Review,
Methods for Supervised Representation Learning

Guest Lecturer (Introduction to Human-Language Technology)	2019-2023
Automatic Speech Recognition Tutorial	
Guest Lecturer JSALT Summer School	2022-2024
Automatic Speech Recognition Lab	
CLSP Seminar Series Recording Committee	2014-2022

COURSES TAUGHT & INVITED TALKS

JHU Course 520.666 – Information Extraction from Speech	Spring 2023, 2024, 2025
SDAIA Winter School Code-switching ASR team lead	Dec 2024
Interspeech Tutorial: ASR with Next Generation Kaldi Tutorial	Aug 2023
JSALT Talk (Code-switching ASR)	Aug 2022
HLTCOE Tech-exchange – ASR for Digraphic Languages	Fall 2021
HLTCOE Tech-exchange – mTEDx: A Multilingual Speech Translation Corpus	Spring 2021

SELECTED PUBLICATIONS

Xinyuan, H.L., Zexin Cai, Ashi Garg, Kevin Duh, Leibny Paola Garca-Perera, Sanjeev Khudanpur, Nicholas Andrews, **Matthew Wiesner**, HLTCOE JHU Submission to the Voice Privacy Challenge 2024. Symposium on Security and Privacy in Speech Communication 2024 (**VoicePrivacy Best Paper**)

Polok, Alexander, Dominik Klement, Jiangyu Han, imon Sedlek, Bolaji Yusuf, Matthew Maciejewski, **Matthew Wiesner**, Luk Burget. "BUT/JHU System Description for CHiME-8 NOTSOFAR-1 Challenge." CHiME Workshop 2024 (**CHiME Award**)

Matthew Wiesner, Patrick Foley, Bismark Bamfo Odoom, Leibny Paola Garcia Perera, Kenton Murray, Philipp Koehn, *Where are you from? Geolocating Speech and Applications to Language Identification*, NAACL 2024

Adithya Renduchintala, Shuoyang Ding, **Matthew Wiesner** and Shinji Watanabe, *Multi-Modal Data Augmentation for End-to-end ASR*, INTERSPEECH 2018 (**Best Student Paper**)

Shinji Watanabe, Takaaki Hori, Shigeki Karita, Tomoki Hayashi, Jiro Nishitoba, Yuya Unno, Nelson Enrique Yalta Soplin, Jahn Heymann, **Matthew Wiesner**, Nanxin Chen, Adithya Renduchintala, Tsubasa Ochiai, *ESPnet: End-to-End Speech Processing Toolkit*, INTERSPEECH 2018.

Oliver Adams, **Matthew Wiesner**, Shinji Watanabe, David Yarowsky, *Massively Multilingual Adversarial Speech Recognition*, NAACL 2018

Amir Hussein, Dorsa Zeinali, Ondej Klejch, **Matthew Wiesner**, Brian Yan, Shammur Chowdhury, Ahmed Ali, Shinji Watanabe, Sanjeev Khudanpur, *Speech collage: code-switched audio generation by collaging monolingual corpora*, ICASSP 2024

Cihan Xiao, Henri Li Xinyuan, Jinyi Yang, Dongji Gao, **Matthew Wiesner**, Kevin Duh, Sanjeev Khudanpur, *HK-LegiCoST: Leveraging Non-Verbatim Transcripts for Speech Translation*, INTERSPEECH 2023

Dongji Gao, **Matthew Wiesner**, Hainan Xu, Paola Garcia, Daniel Povey, Sanjeev Khudanpur, *Bypass Temporal Classification: Weakly Supervised Automatic Speech Recognition with Imperfect Transcripts*, INTERSPEECH 2023

Ruizhe Huang, **Matthew Wiesner**, Paola Garcia-Perera, Daniel Povey, Jan Trmal, Sanjeev Khudanpur, *Building Keyword Search System from End-To-End Asr Systems*, ICASSP 2023

Brian Yan, **Matthew Wiesner**, Ondrej Klejch, Preethi Jyothi, and Shinji Watanabe, *Towards Zero-Shot Code-Switched Speech Recognition* ICASSP 2023

Jinyi Yang, Amir Hussein, **Matthew Wiesner**, and Sanjeev Khudanpur, *JHU IWSLT 2022 Dialect Speech Translation System Description*, IWSLT 2022

Matthew Wiesner, Desh Raj, and Sanjeev Khudanpur, *Injecting text and cross-lingual supervision in few-shot learning from self-supervised models*, ICASSP 2022

Matthew Wiesner, Mousmita Sarma, Ashish Arora, Desh Raj, Dongji Gao, Ruizhe Huang, Supreet Preet, Moris Johnson, Zikra Iqbal, Nagendra Goel, Jan Trmal, Paola Garca, Sanjeev Khudanpur, *Training Hybrid Models on Noisy Transliterated Transcripts for Code-Switched Speech Recognition*, INTERSPEECH 2021.

Elizabeth, Salesky, **Matthew Wiesner**, Jacob Bremerman , Roldano Cattoni, Matteo Negri, Marco Turchi, Douglas W. Oard, and Post Matt. *The multilingual TEDx corpus for speech recognition and translation*, INTERSPEECH 2021

Elizabeth Salesky, Eleanor Chodroff, Tiago Pimentel, **Matthew Wiesner**, Ryan Cotterell, Alan W Black, Jason Eisner, *A Corpus for Large-Scale Phonetic Typology*, ACL 2020.

Matthew Wiesner, Oliver Adams, David Yarowsky, Jan Trmal, Sanjeev Khudanpur, *Zero-shot pronunciation lexicons for cross-language acoustic model transfer*, ASRU 2019

Matthew Wiesner, Adithya Renduchintala, Shinji Watanabe, Chunxi Liu, Najim Dehak, Sanjeev Khudanpur, *Pretraining by Backtranslation for End-to-end ASR in Low-Resource Settings*, INTERSPEECH 2019

Martin Karafit, Murali Karthick Baskar, Shinji Watanabe, Takaaki Hori, **Matthew Wiesner**, Jan "Honza" Černocký, *Analysis of Multilingual Sequence-to-Sequence speech recognition systems*, INTERSPEECH 2019

Jaejin Cho, Murali Karthick Baskar, Ruizhi Li, **Matthew Wiesner**, Sri Harish Mallidi, Nelson Yalta, Martin Karafiat, Shinji Watanabe, Takaaki Hori, *Multilingual sequence-to-sequence speech recognition: architecture, transfer learning, and language modeling*, SLT 2018

Chunxi Liu, **Matthew Wiesner**, Shinji Watanabe, Craig Harman, Jan Trmal, Najim Dehak, Sanjeev Khudanpur, *Low-Resource Centextual Topic Identification on Speech*, SLT 2018

Matthew Wiesner, Chunxi Liu, Lucas Ondel, Craig Harman, Vimal Manohar, Jan Trmal, Zhongqiang Huang, Najim Dehak, Sanjeev Khudanpur, *Automatic Speech Recognition and Topic Identification for Almost-Zero-Resource Languages*, INTERSPEECH 2018.

Chunxi Liu, Jan Trmal, **Matthew Wiesner**, Craig Harman, Sanjeev Khudanpur, *Topic Identification for Speech without ASR*, INTERSPEECH 2017 (**Nominated for Best Student Paper**).

Jan Trmal, **Matthew Wiesner**, Vijayaditya Peddinti, Xiaohui Zhang, Pegah Ghahremani, Yiming Wang, Vimal Manohar, Hainan Xi, Daniel Povey, Sanjeev Khudanpur, *The Kaldi OpenKWS System: Improving Low Resource Keyword Search*, INTERSPEECH 2017.