

Matthew Wiesner

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RESEARCH INTERESTS

Speech processing with emphasis on multi-lingual and cross-lingual modeling for automatic speech recognition, speech translation, and topic identification from speech, especially for low-resource languages.

EDUCATION

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

EXPERIENCE

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

OTHER ACTIVITIES & COMMUNITY SERVICE

Guest Lecturer (Graduate-level course, Machine Learning for Signal Processing): Linear Algebra Review, Methods for Supervised Representation Learning	2017-2022
Guest Lecturer (Introduction to Human-Language Technology) Automatic Speech Recognition Tutorial	2019-2023
Guest Lecturer JSALT Summer School Automatic Speech Recognition Lab	2022
CLSP Seminar Series Recording Committee	2014-2022
IWSLT Low-Resource Multilingual Speech Translation Track Co-Organizer	2021
IWLST Dialectal Speech Translation Track Co-Organizer	2022
CHiME-7 Task 1 (Distant Automatic Speech Recognition) Co-Organizer	2022
Reviewer IEEE, ICASSP, Interspeech, SLT	2021-present
HLTCOE SCALE Speech Translation Co-Lead	Summer 2023

COURSES TAUGHT & INVITED TALKS

JHU Course 520.666 – Information Extraction from Speech	Spring 2023, 2024
ICASSP Tutorial: ASR with Next Generation Kaldi Tutorial	Aug 2023
JSALT Code-switching ASR	Aug 2022

HLTCOE Tech-exchange – ASR for Digraphic Languages

Fall 2021

HLTCOE Tech-exchange – A new Multilingual Speech Translation Corpus

Spring 2021

DARPA LORELEI PI Meetings

Fall 2018, Spring, Fall 2019

The JHU LoReHLT system for situation frame detection from speech

PUBLICATIONS

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

Amir Hussein, Dorsa Zeinali, Ondrej 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

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

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 Contextual 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.

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.

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.