

Minh Pham

(he/him/his)

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RESEARCH INTERESTS Machine Learning, Domain Adaptation, Few-shot Learning, Speaker Verification

EDUCATION **New York University** Incoming Fall 2021

Ph.D. Candidate in Computer Science, Tandon School of Engineering

Advisor: Dr. Chinmay Hegde

Worcester Polytechnic Institute

May, 2021

B.S. in Computer Science & B.S. in Mathematical Sciences

Advisor: Dr. Jacob Whitehill

Selected Coursework: Deep Learning*, Computer Vision*, Artificial Intelligence, Statistical Learning, Machine Learning (* = graduate-level)

PUBLICATIONS **Conference**

[1] **Pham, M.**, Li, Z. and Whitehill, J. “Toward Speaker Embeddings: Automated Collection of Speech Samples from Unknown Distinct Speakers”. *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), 2020* [PDF](#)

[2] **Pham, M.**, Li, Z. and Whitehill, J. “How Does Label Noise Affect the Quality of Speaker Embeddings?”. *Conference of the International Speech Communication Association (INTERSPEECH), 2020* [PDF](#)

Preprint/Under review

[1] Ramakrishnan, A., **Pham, M.** and Whitehill, J. “Harnessing Geometric Constraints from Auxiliary Labels to Improve Embedding Functions for One-Shot Learning”. [PDF](#)

EXPERIENCE **Research Assistant, WPI, Speaker Embeddings** May, 2019 - Present

Supervised by Prof. Jacob Whitehill.

- Designed a paradigm to bootstrap large-scale collection of speech samples from unique speakers by using pre-trained speaker and face embedding models; published the [BookTubeSpeech](#) dataset containing video and speech of 8,455 unique speakers.
- Studied how label noise affects the accuracy of embedding models for speaker verification.
- Explored different domain adaptation strategies for room acoustics adaptation for speaker verification.
- Examined how to improve speaker embeddings by introducing different geometric constraints on the embedding space learnt by a deep learning model by using the dataset’s available meta information.

Research Assistant, WPI, Sequential Rule Mining & Emotion Detection Feb, 2019 - Aug, 2020

Supervised by Prof. Elke A. Rundensteiner

- Implemented ERMiner algorithm for sequential rule mining from research paper in C++.
- Explored different transfer learning strategies for emotion detection when limited training data are available; implemented different CNN architectures for emotion classification based on speech.

Research Intern, VinAI Research, Low-Resource Speech Recognition Jun, 2020 - Aug, 2020

Supervised by Dr. Viet Anh TRAN.

- Conducted research on automatic speech recognition (ASR) with limited training data.
- Trained monolingual and multilingual ASR models for German, Spanish, and English.
- Researched how unsupervised pre-training on unlabeled audio data of multiple languages affect acoustic model training.

PROJECTS	<p>Corrosion Resistance, WPI (sponsored by Army Research Laboratory) Jan, 2020 - May, 2020 <i>Supervised by Prof. Fatemeh Emdad, Prof. Chun-Kit Ngan, and Prof. Elke A. Rundensteiner</i></p> <ul style="list-style-type: none"> • Used React Native to develop a mobile application for data collection; integrated computer vision techniques for auto alignment and cropping. • Built a dashboard to help users study material deterioration and identify failed observations. <p>NFL Player Projections, WPI (sponsored by DraftKings) Aug, 2019 - Mar, 2020 <i>Supervised by Prof. Randy C. Paffenroth, Prof. Donald R. Brown, and Prof. Ziming Zhang</i></p> <ul style="list-style-type: none"> • Performed exploratory data analysis and feature engineering on NFL players' statistics; used Random Forest to improve DraftKings baseline performance by ~10%. • Researched how to utilize a Generative Adversarial Network to generate synthetic statistics for NFL players.
ACTIVITIES & AWARDS	<p>Poster Presentation, WPI Works in Progress Undergraduate Research Symposium Oct, 2019</p> <p>Poster Presentation, "Toward Speaker Embeddings: Automated Collection of Speech Samples from Unknown Distinct Speakers", ICASSP 2020 May, 2020</p> <p>Poster Presentation, "How Does Label Noise Affect the Quality of Speaker Embeddings?", INTERSPEECH 2020 Oct, 2020</p> <p>Student Member, The Institute of Electrical and Electronics Engineers (IEEE) Nov, 2019 - Present</p> <p>First Prize, WPI Diversity Collaboration Hackathon Oct, 2019</p> <p>WPI University Award & International Scholarship 2017 - 2021</p>
SKILLS	<p>Programming Python, Java, C++, SQL, R</p> <p>Technologies PyTorch, Tensorflow, Google Cloud, AWS, Git, Slurm</p> <p>Certificates Deep Learning Specialization (<i>Coursera</i>), Tensorflow in Practice Specialization (<i>Coursera</i>), Machine Learning (<i>DataCamp</i>)</p>