Youxiang Zhu

Website: billzyx.github.io
Email: youxiang.zhu001@umb.edu
Phone: +1 (857)-269-4221

About me

I am a second-year Ph.D. student in Computer Science. I'm broadly interested in deep learning and its applications, including Speech-based Health Diagnosis, Speech/Text Classification, and Deep Transfer Learning. I am particularly interested in how can we build AI systems to enable effective and reliable health diagnoses despite the heterogeneous, complex, and scarcity of data. My recent work has focused on dementia detection from speech, specifically: i) Effective transfer learning of semantic and non-semantic information[6][5], ii) Explainable models[2] iii) Overcome lack of domain-similar data in transfer learning[1]. Before Ph.D., my research was focus on fine-grained image classification[7][8].

Education

University of Massachusetts Boston — Boston, MA, USA
Ph.D. in Computer Science, Advisor: Xiaohui Liang — 2021–Current

Nanjing Forestry University — Nanjing, Jiangsu, China
B.E. in Computer Science and Technology, Advisor: Ning Ye — 2016–2020

- Thesis: "Sample-wise Selection for Fine-grained Image Classification" (Best Bachelor Thesis Award)

Work Experience

University of Massachusetts Boston — Boston, MA, USA
Research Assistant — Sep. 2021–Current

- Project: Exploiting Voice Assistant Systems for Early Detection of Cognitive Decline (NIH Grant: 1R01AG067416-01)

KPMG Digital Ignition Centre — Nanjing, Jiangsu, China
AI Intern — Aug. 2019–Dec.2019

- Project: Table content extraction in uneditable PDF documents

Publications

1. **Youxiang Zhu**, Xiaohui Liang, John A. Batsis, and Robert M. Roth, Domain-aware Intermediate Pretraining for Dementia Detection with Limited Data, Conference of the International Speech Communication Association (INTERSPEECH), 2022. (Accept)

2. **Youxiang Zhu**, Bang Tran, Xiaohui Liang, John A. Batsis, and Robert M. Roth. "Towards Interpretability of Speech Pause in Dementia Detection Using Adversarial Learning." In ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 6462-6466. IEEE, 2022.

3. Bang Tran, **Youxiang Zhu**, Xiaohui Liang, James W. Schwoebel, and Lindsay A. Warrenburg. "Speech Tasks Relevant to Sleepiness Determined With Deep Transfer Learning." In ICASSP 2022-2022 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), pp. 6937-6941. IEEE, 2022.

4. Xiaohui Liang, John A. Batsis, **Youxiang Zhu**, Tiffany M. Driesse, Robert M. Roth, David Kotz, and Brian MacWhinney. "Evaluating voice-assistant commands for dementia detection." Computer Speech & Language 72 (2022): 101297.

5. **Youxiang Zhu**, Abdelrahman Obyat, Xiaohui Liang, John A. Batsis, and Robert M. Roth. "WavBERT: Exploiting Semantic and Non-Semantic Speech Using Wav2vec and BERT for Dementia Detection." Conference of the International Speech Communication Association (INTERSPEECH), pp. 3790-3794. 2021.

6. **Youxiang Zhu**, Xiaohui Liang, John A. Batsis, and Robert M. Roth. "Exploring deep transfer learning techniques for Alzheimer's dementia detection." Frontiers in computer science (2021): 22.

7. **Youxiang Zhu**, Ruochen Li, Yin Yang, and Ning Ye. "Learning Cascade Attention for Fine-grained Image Classification." Neural Networks (2020).

8. **Youxiang Zhu**, Weiming Sun, Xiangying Cao, Chunyan Wang, Dongyang Wu, Yin Yang, and Ning Ye. "TA-CNN: Two-way Attention Models in Deep Convolutional Neural Network for Plant Recognition." Neurocomputing (2019).

9. Chunyan Wang, Yiqing Xu, Xuelin Wang, Li Zhang, Suyun Wei, Qiaolin Ye, **Youxiang Zhu**, Hengfu Yin, Manoj Nainwal, Luis, Tanon-Reyes, Feng Cheng, Tongming Yin and Ning Ye. "GEsture: an online hand-drawing tool for gene expression pattern search." PeerJ (2018).

Honors and Awards

- Best (First-class) Bachelor Thesis Award of Nanjing Forestry University and Jiangsu Province 2020
- Honorable Mention in Mathematical Contest in Modeling 2018
- First-class Scholarship of Nanjing Forestry University (Top 10%) 2018 and 2019

Skills

- **Programming:** Python, Java, Tensorflow, PyTorch
- **Research Fields:** Speech-based Health Diagnosis, Speech/Text Classification, Deep Transfer Learning, Fine-grained Image Classification

Professional Services

- **Journal Reviewer**
  - IEEE Internet of Things Journal
  - Frontiers in Oncology, section Radiation Oncology
- **Conference Reviewer**
  - IEEE INFOCOM 2022
  - IEEE ICC 2022

Links

- **Github:** https://github.com/billzyx
- **Google scholar:** https://scholar.google.com/citations?user=priGDB0AAAAJ&hl=en