Kexin Feng

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SUMMARY

Computer science Ph.D. student, aiming to design the explainable machine learning systems that can be applied to clinical mental health interviews. I have experience in both research and industry projects (General Motors). Actively seeking an internship opportunity for 2023 summer.

EDUCATION

Texas A&M University

Ph.D., *Computer Science. Advisor: Theodora Chaspari* — Expected: 2024

BS, *Major in Computer Science, Minor in Cybersecurity* — 2020

SKILLS

- **Programming languages**: Python, C++, R, MATLAB, SQL
- **Tools**: Tensorflow, Pytorch, Scikit-learn, OpenSmile, Matplotlib, Audacity, PowerBI, DBeaver

RESEARCH PROJECTS

1. Unrestricted real-world stress detection; **National Science Foundation**
   - Aim to identify the stress for a given time interval using wearable devices and smartphone data
   - Propose a novel machine learning method combining Siamese Neural Network and Wasserstein distance, to address multiple challenges (e.g., interpersonal difference)
   - This project fills the gap between in-lab (or conditional real-world) and unrestricted stress detection
2. Knowledge-driven depression identification for clinical interviews; **National Science Foundation**
   - Aim to build machine learning models that are self-explainable for potential clinical depression detection
   - Depression often associated with a reduced vowel space, and we formulate this human knowledge into a machine learning task
   - Proposed method heavily relies on human knowledge, thus alleviates the 'black box' in machine learning, and also easier to gain trust from human users, especially in clinical environments
3. Other funded projects related to data science
   - Developing a vehicle defects identification system for Paint Shops using interpretable machine learning method with a user-friendly interface; **General Motors**
   - Analyzing social emotion change during COVID-19 quarantine using YouTube conversational vlogs and their connections with important social events; **Texas A&M Institute of data science**

TEACHING EXPERIENCE

Texas A&M University — College Station, TX

Graduate Teaching Assistant — August 2020 – May 2021

- TA for CSCE 633 (machine learning), CSCE 221-Honor (data structures and algorithms), CSCE 433/627 (formal languages and automata / theory of computability)
- Responsible for running programming demos, review class quizzes in lab, and grading assignments

Spark China Education — Virtual

Teaching Assistant — May 2020 – August 2020

- Outcome: "Sketch-Inspector: A Deep Mixture Model for High-Quality Sketch Generation of Cats" in International Symposium on Visual Computing (ISVC 2020). My name was mentioned in Acknowledgement section.

PROFESSIONAL SERVICES

Reviewer:

- Conference: EMBC 2021, 2022
- Journals: Neural Processing Letters (NEPL), IEEE Transactions on Instrumentation & Measurement (IEEE TIM), Intelligent Systems in Accounting, Finance and Management

Student Member:

- IEEE, IEEE Signal Processing Society

JOURNAL PUBLICATIONS

1. **K. Feng** and T. Chaspari, "Few-shot Learning in Emotion Recognition of Spontaneous Speech Using a Siamese Neural Network with Adaptive Sample Pair Formation," IEEE Transactions on Affective Computing (TAFFC), DOI: 10.1109/TAFFC.2021.3109485
2. M. Yadav, Md. Sakib, E. H. Nirjhar, **K. Feng**, A. Behzadan and T. Chaspari, "Exploring individual differences of public speaking anxiety in real-life and virtual presentations," IEEE Transactions on Affective Computing (TAFFC), DOI: 10.1109/TAFFC.2020.3048299
3. **K. Feng** and T. Chaspari, "A review of generalizable transfer learning in automatic emotion recognition," Frontiers in Computer Science, DOI: 10.3389/fcomp.2020.00009

SELECTED CONFERENCE PUBLICATIONS

1. **K. Feng**, J. B. Duong, K. Carta, S. Walters, G. Margolin, A. C. Timmons, T. Chaspari, "A Semi-supervised Few-shot Learning Approach With Domain Adaptation for Personalized Stress Detection Within Dating Couples," submitted to ICASSP 2023.
2. **K. Feng** and T. Chaspari, "A Knowledge-driven Vowel-based Approach of Depression Classification From Speech Using Data Augmentation," submitted to ICASSP 2023.
3. **K. Feng** and T. Chaspari, "Toward Knowledge-driven Speech-Based Models of Depression: Leveraging Spectrotemporal Variations in Speech Vowels," IEEE International Conference on Biomedical and Health Informatics (BHI 2022), Ioannina, Greece, September, 2022.
4. **K. Feng**, P. Zanwar, A. Behzadan, and T. Chaspari, "Exploring Speech Cues in Web-mined COVID-19 Conversational Vlogs," *ACM Multimedia-2020 workshop on Media Analytics for Societal Trends (MAST 2020)*, October 2020, DOI: 10.1145/3423268.3423584
5. **K. Feng** and T. Chaspari, "A Siamese neural network with modified distance loss for transfer learning in speech emotion recognition," *AAAI-2020 workshop on Affective Content Analysis (AffCon 2020), pp. 29-35,* New York, February 2020.
6. V. Narula, **K. Feng** and T. Chaspari, "Preserving privacy in image-based emotion recognition through user anonymization," *International Conference on Multimodal Interaction (ICMI 2020),* Utrecht, Netherlands, October 2020, DOI: 10.1145/3382507.3418833
7. M. Yadav, Md. Sakib, **K. Feng**, A. Behzadan and T. Chaspari, "Virtual reality interface and population-specific models to mitigate public speaking anxiety," *International Conference on Affective Computing and Intelligent Interaction (ACII 2019)*, Cambridge, United Kingdom, September 2019 (BEST PAPER NOMINATION), DOI: 10.1109/ACII.2019.8925509