

Shao-Yen Tseng

E-mail: shaoyent@usc.edu

RESEARCH INTERESTS

Natural Language Processing, Machine Learning, Deep Learning, Behavioral Signal Processing, Speech and Audio Processing, Automatic Speech Recognition

EDUCATION

University of Southern California (USC), United States Aug 2014 to present

- Ph.D. in Electrical Engineering
- Advisor: Prof. Panayiotis Georgiou
- GPA: 3.89 / 4.0
- Focus on research in Behavioral Signal Processing, NLP, and ASR

National Chiao Tung University (NCTU), Taiwan Sept 2008 to Dec 2010

- Master of Science in Electronic Engineering
- Thesis title: "*An Effective Heart Rate Variability Processor Design for Portable 3-Lead ECG Monitoring System-on-Chip*"
- GPA: 4.0 / 4.0

National Sun Yat-sen University (NSYSU), Taiwan Sept 2004 to June 2008

- Bachelor of Science in Electrical Engineering
- GPA: 3.28 / 4.0

SELECTED COURSEWORK

Advanced Natural Language Processing, Machine Learning from Signals, Mathematical Pattern Recognition, Foundations of Artificial Intelligence

TECHNICAL SKILLS

Languages : Python, MATLAB

Tools : Kaldi, Tensorflow, PyTorch, Keras

RESEARCH & WORK EXPERIENCE

Graduate Research Assistant, USC Aug. 2014 to present

- RA in the Signal Processing for Communication Understanding and Behavior Analysis Lab
- Deep learning methods for behavior analysis using spoken language in human interactions
- Unsupervised training of conversation models to improve analysis of behaviors in language
- Development of novel ideas for improving acoustic models in end-to-end ASR

Deep Learning Intern, Bosch Research & Technology Center USA May 2017 to Aug 2017

- Developed deep models for large scale weakly supervised sound detection in smart cars
- Implementation of deep multiple instance learning frameworks for acoustic event detection
- Training of audio embeddings using computer vision-inspired CNN architectures

Advanced Engineer, Faraday Technology Corporation Feb 2012 to July 2014

- Chip design and FPGA verification of high speed interface IPs

Research Assistant, NCTU, Taiwan Sept 2008 to Dec 2010

- System-on-chip design of a portable heart rate monitoring system based on EKG
- Developed an algorithm for detecting heart rate variability in variable-length EKG time series

Intern, National Chip Implementation Center, Taiwan July 2008 to Sept 2008

- FPGA verification and testing

SELECTED PUBLICATIONS

PhD publications (USC)

1. Shao-Yen Tseng, Brian Baucom, and Panayiotis Georgiou, "**Approaching Human Performance in Behavior Estimation in Couples Therapy Using Deep Sentence Embeddings**", *Proceedings of Interspeech, Stockholm, Sweden, Aug. 2017*.
2. Shao-Yen Tseng, Sandeep Nallan Chakravarthula, Brian Baucom, and Panayiotis Georgiou, "**Couples Behavior Modeling and Annotation Using Low-Resource LSTM Language Models**", *Proceedings of Interspeech, San Francisco, CA, Sept. 2016*

MS publications (NCTU)

3. Shao-Yen Tseng, Wai-Chi Fang, "**An EKG System-On-Chip For Portable Time-Frequency HRV Analysis**", *IEEE International Conference on Consumer Electronics (ICCE)*, 2011
4. Shao-Yen Tseng, Wai-Chi Fang, "**An Effective Heart Rate Variability Processor Design Based on Time-Frequency Analysis Algorithm Using Windowed Lomb Periodogram**" *IEEE Biomedical Circuits and Systems Conference (BioCAS)*, 2010
5. Shao-Yen Tseng, Chung-Han Tsai, Yu-Sheng Lai, Wai-Chi Fang, "**A wireless biomedical sensor network using IEEE802.15.4**", *IEEE Life Science Systems and Applications Workshop (LISSA)*, 2009