Yi-Te (Eeder) Hsu

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Research Interests

Healthcare, Bio-Acoustic Signals Processing, NLP, Data Mining, Machine Learning

Education

National Taiwan University (NTU) Taipei, Taiwan

Bachelor of Science in Electrical Engineering; GPA: 3.85/4.00 (Last 60 units) *Sep. 2012 – Jan. 2017*

- **NTU Creativity and Entrepreneurship Program** *Sep. 2015 – Feb. 2016*
- **NTU Leadership Development Program** *Sep. 2015 – Jan. 2017*
- **Relevant Courses (*graduate-level courses)** Algorithms (*); Data Science (*); Artificial Intelligence (*); Machine Learning (*); Data Structure and Programming; Computational Methods and Tools for Data Science (*); Discrete Mathematics; Psychoinformatics and Neuroinformatics (*); Probability and Statistics

Publications

[1] **Yi-Te Hsu**, Yu-Chen Lin, Szu-Wei Fu, Yu Tsao, and Tei-Wei Kuo,"A study on speech enhancement using exponent-only floating point quantized neural network (EOFP-QNN)" *accepted to IEEE Spoken Language Technology conference (SLT 2018)*

[2] **Yi-Te Hsu**, Zining Zhu, Chi-Te Wang, Shih-Hau Fang, Frank Rudzicz and Yu Tsao,"Robustness against the channel effect in pathological voice detection" *accepted to Machine Learning for Health Workshop at NIPS 2018*

[3] Bai Li, **Yi-Te Hsu** and Frank Rudzicz,"Detecting dementia in Mandarin Chinese using transfer learning from a parallel corpus" *submitted to Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL 2019)*

[4] Yu-Chen Lin, **Yi-Te Hsu**, Szu-Wei Fu, Yu Tsao, and Tei-Wei Kuo,"Acceleration and compression of speech enhancement using integer-adder deep neural network (IA-Net)" *submitted to IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2019)*

[5] Zong-Ying Chuang, Xiao-Tong Yu, Chen Ji-Ying, **Yi-Te Hsu**, Zhe-Zhuang Xu, Chi-Te Wang, Feng-Chuan Lin, and Shih-Hau Fang,"DNN-based Approach to Detect and Classify Pathological Voice" *accepted to FEMH Voice Data Challenge at IEEE International Conference on Big Data (IEEE Big Data 2018)*

Research Experiences

Speech, Language and Healthcare University of Toronto, Canada

Advisor: Prof. Frank Rudzicz *Sep 2018 - Present*

- **Robustness against the channel effect in pathological voice detection [2]**
  - Built a robust model which can detect the pathological voice and achieve 0.94 area under precision-recall curve
  - Applied domain adaptation technique to eliminate channel mismatch between devices, and increase target domain PR-AUC from 0.84 to 0.94.
- **Detection of Alzheimer's disease [3]**
  - Used machine/ deep learning technique to extract NLP features from corpus of Alzheimers disease speech.
  - Proposed novel method to transfer mandarin corpus features to English one from Mandarin dementia corpus, which does not have enough data.

Digital Signal Processing Academia Sinica, Taiwan

Advisor:Dr. Yu Tsao *Feb 2018 - Present*

- **Quantization and acceleration on deep neural network of speech enhancement tasks [1,4]**
  - Proposed exponent-only floating point quantization method to convert a large DNN model to a small one.
  - Reduced the model size by a factor of 4 and maintained satisfactory speech enhancement performance.
  - Accelerated the inference procedure by 1.2x on a compressed neural network.

Data Mining National Taiwan University, Taiwan
Advisor: Prof. Ming-Syan Chen *Sep 2015 - Jan 2016*

- **Facebook Likes Estimator for Major News Publishers Pages**
  – Discovered the true influential factors on how to get more likes on a Facebook page post.
  – Achieved 95% accuracy in predicting how many likes one post will obtain by machine learning techniques.

Social Networks National Taiwan University, Taiwan
Advisor: Prof. Kwang-Cheng Chen *Sep 2014 - July 2015*

- **Analysis of information dissemination of social movement**
  – Proposed a method to deduce the consequence of large social movements.
  – Applied an empirically-driven model to describe the dissemination of online information.
  – Identified the information percolation as the main factor to facilitate a severe action of users.

Selected Academic Projects

- **An analysis of how social media influence human emotion**
  – Designed an android App to collect real-time data that tracked user happiness.
  – Used statistics to reveal the relationship between users happiness and the time spent on social media.
- **MovieWatson: an intelligent movie recommendation system**
  – Built a movie recommendation system that instantaneously captured user preference without needing user data history
  – Utilized collaborative filtering system as well as database retrieval method to provide recommended 10 movies.

Work Experiences

- **Research Assistant, Academia Sinica** *Feb. 2018 – Present*
  – Broadly surveyed the research about speech and bio-signal processing, such as speech enhancement.
  – Applied deep learning and the other novel algorithms to the speech and bio-signal problems.
- **Research Assistant, Academia Sinica** *Nov. 2017 – Dec. 2017*
  – Conducted research on location-based social networks, analyzing both users location and social relationship.
  – Used approximation algorithms to solve NP-Hard problems of VR and social networks.
- **Executive Assistant, Guan-Cheng, Kinmen** *Mar. 2017 – Oct. 2017*
  – Focused on digital transformation of this company.
  – Introducing more than 500 electric scooters and cars to the island.
- **Data Scientist Internship, Mobagel Inc.** *July. 2016 – Feb. 2017*
  – Applied machine learning techniques and statistic model to extract core information from different types of IoT data.
  – Predicted the space occupancy rate with detected real-time data from sensors.
  – Instantaneously recommended products to customers based on their historical data.
- **Youth Policy Advisory Committee of Kinmen County Government** *Aug. 2014 – Present*
  – Committee member.
  – Consulting for government policies on network and information system.
- **Founder, Foreseen: A career matchmaking platform of youth and retirees** *Sept. 2015 – Feb. 2016*
  – Attracted half of the customers to re-use the service.
  – Realized the challenge of founding and running a startup.
- **Research Assistant, Wireless Broadband Communication System Laboratory, NTU** *Sept. 2014 – July 2015*
  – Conducted research on collective reactions developed by consensus in social network.
- **Teaching Assistant, Center for Teaching and Learning Development, NTU** *Feb. 2014 – Aug. 2014*
  – Guided students in discussing service-related topics.
  – Trained six teams to teach elementary school students career planning skills.

Leadership Experiences

Director, NTUEE Chain: Built connection between graduate students and undergraduate students in NTUEE.
Founder and Director of Growth Camp for Teenagers in Kinmen
Vice Director, Kinmen Alumni Association: Founder of the social service team to Kinmen.
Captain, Badminton Department Team: Won the championship in the annual competition among 6 cities.