Lang-Chi Yu

Research Assistant · Software Engineer Intern

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Research Interests

Machine learning, information retrieval, automatic summarization, hit song prediction and generation

Education

National Taiwan University — *Taipei, Taiwan*

M.S. in Communication Engineering — *Sep. 2015 –– Aug. 2017*

B.S. in Electrical Engineering — *Sep. 2010 –– Jun. 2014*

- GPA: 4.01/4.3 (Major), 3.87/4.3 (B.S.), 3.78/4.3 (Cumulative)

Publications

[1] **Lang-Chi Yu**, Yi-Hsuan Yang, Yun-Ning Hung, and Yi-An Chen, **"Hit Song Prediction for Pop Music by Siamese CNN with Ranking Loss,"** arXiv preprint arXiv:1710.10814 (2017), submitted to IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP), 2018.

[2] **Lang-Chi Yu**, Hung-yi Lee, and Lin-shan Lee, **"Abstractive Headline Generation for Spoken Content by Attentive Recurrent Neural Networks with ASR Error Modeling,"** *IEEE Workshop on Spoken Language Technology*, Sep. 2016.

[3] Sz-Rung Shiang, Po-Wei Chou, and **Lang-Chi Yu**, **"Spoken Term Detection and Spoken Content Retrieval: Evaluations on NTCIR 11 SpokenQuery&Doc Task,"** in *Proceedings of the 11th NTCIR Conference*, 2014, pp. 371–375.

Research Experience

Hit Song Prediction for Pop Music [1]

Aug. 2017 — PRESENT

Advisor: Dr. Yi-Hsuan Yang, Music and Audio Computing Laboratory, Academia Sinica

- Proposed multi-objective Siamese CNN model to learn both hit scores and relative ranking of songs jointly from primitive audio features
- Devised a number of Siamese pair sampling methods to overcome data-specific problems; e.g., A/B sampling alleviates data imbalance problem in KKBOX dataset
- Outperformed previous works regarding hit song prediction as a regression or classification problem

Abstractive Headline Generation for Speech with ASR Error Modeling [2]

Apr. 2016 — Jul. 2017

Advisor: Prof. Lin-shan Lee, Speech Processing and Machine Learning Laboratory, NTU

- Proposed novel attentive RNN architecture incorporating ASR error modeling mechanism
- Enabled spoken content headline generation model to learn from abundant text data and little ASR data
- Outperformed RNN and ARNN models trained on pure text data

NTCIR-11 SpokenQuery&Doc Task [3]

Sep. 2013 –– Jun. 2014

Advisor: Prof. Lin-shan Lee, Speech Processing and Machine Learning Laboratory, NTU

- Considered acoustic feature similarity between utterances over both word and sub-word lattices to tackle general problem of open-vocabulary retrieval with variable-length queries in STD task
- Utilized Rocchio Algorithm, query expansion using RNNLM, and lecture slide similarity feedback using random walk to improve relevance of first-pass retrieval in SCR task

Work Experience

Academia Sinica [1] — *Taipei, Taiwan*

Research Assistant (Full-time) — *Aug. 2017 –– PRESENT*

KKBOX Inc. [1] — *Taipei, Taiwan*

Software Engineer Intern (Part-time) — *Aug. 2017 –– PRESENT*

Graduate Institute of Communication Engineering, National Taiwan University — *Taipei, Taiwan*

Teaching Assistant — *Sep. 2015 –– Jan. 2017*

- Undergraduate Special Project (Topics: Summarization; Spoken Dialogue System)

Compulsory Military Service, Taiwan Coast Guard — *Yunlin, Taiwan*

Platoon Leader, Second Lieutenant — *Aug. 2014 –– Jul. 2015*

Department of Electrical Engineering, National Taiwan University — *Taipei, Taiwan*

Web Developer (Part-time) — *Mar. 2013 –– Sep. 2013*

- Developed PaGamO, the world's first MOOC-based multi-student gaming platform for course on Coursera
- Framework design of project
- Website front-end design and development

Department of Electrical Engineering, National Taiwan University — *Taipei, Taiwan*

Electrical Engineering Student Association Member — *Feb. 2012 –– Jun. 2014*

- Assisted academic affairs in EE department with EE course registration, introduction to undergraduate courses and research, and textbook service

Honors & Awards

Advanced Speech Technologies Scholarship — *Oct. 2016*

Graduate Institute of Communication Engineering, National Taiwan University

- 2–4 recipients, approximately US $16,000 per person per year

Bronze Medal — *Sep. 2013*

Altera Innovate Asia FPGA Design Competition

- Implemented FPGA-optimized SAD algorithm on DE2-115 to detect user's gestures
- Designed and built a USB interface between FPGA board and personal computer for users to control the cursor via the system directly

Presidential Award — *Oct. 2012*

Department of Electrical Engineering, National Taiwan University

- Ranked in top 5% of class in previous semester

Selected Course Projects

Campus Events Manager — *Fall 2014*

Network and Multimedia Lab

- Designed and built Android application with web client to search, manage, import, export, and display upcoming events in user-friendly format (e.g., calendar or map)

Cheat: How AI Lies and Responds to Lies — *Fall 2013*

Articial Intelligence

- Designed AI systems for "Cheat" card game to examine how intelligent agents change strategies given opponent behavior in highly-untrusted environments

Turing Machine from Google Doodle — *Fall 2013*

Embedded System Lab

- Implemented Turing Machine, a mini-game from Google Doodle, with ARM Cortex-M4 microprocessor and Arduino Uno microcontroller board

Skills

Programming	Python, JavaScript, Lua, C/C++, JAVA, Android, MATLAB, LaTeX
Machine Learning	Kaldi, Torch, Theano, TensorFlow
Web Development	Django, Node.js, React.js, Semantic-UI, MySQL, MongoDB
Languages	Mandarin Chinese, English, Japanese, Taiwanese Hokkien

Standardized Test Scores

TOEFL ibt	Total 102 / Reading 30 / Listening 27 / Speaking 22 / Writing 23	*Sep. 2016*
GRE revised general test	Verbal 157 / Quantitative 170 / Analytical Writing 3.0	*Feb. 2014*