

# Lang-Chi Yu

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## Education

### University of Southern California

M.S. IN COMPUTER SCIENCE

- Cumulative GPA: 3.74/4.00

Los Angeles, California

Aug. 2018 — Expected Dec 2019

### National Taiwan University (NTU)

M.S. IN COMMUNICATION ENGINEERING

- Master thesis: “Abstractive Headline Generation for Spoken Content with ASR Error Modeling.”
- Proposed and implemented novel attentive RNN architecture incorporating automatic speech recognition (ASR) error modeling mechanism to learn from text data instead of from large number of spoken documents with reference headlines<sup>1</sup>.
- Generated the finding that proposed architecture outperformed RNN and ARNN models that were trained on pure text data with an increase in ROUGE-1 (correctness metric for summarization) from 21.87 to 22.89.

Taipei, Taiwan

Sep. 2015 — Jun. 2017

B.S. IN ELECTRICAL ENGINEERING

- Cumulative GPA: 3.87/4.30
- Dean's List (top 5%) in Spring 2012

Sep. 2010 — Jun. 2014

## Experience

### Research Center for Information Technology Innovation, Academia Sinica

RESEARCH ASSISTANT

- Devised a new approach to hit song prediction problem, i.e., predicting song's popularity score in a popular music market, by incorporating song ranking model into previous song rating model as Siamese convolutional neural networks (CNN).
- Collaborated with Machine Learning Research Team of KKBOX Inc., Taiwan, implemented the Siamese CNN models with Python TensorFlow, which made great improvement in Kendall's tau (performance metric for ranking songs) from 0.1080 to 0.2421 compared to previous simple deep models on a commercial song dataset of KKBOX.<sup>2</sup>
- Constructed a standardized and publicly-available hit song prediction benchmark with Million Song Dataset and a YouTube crawler.

Taipei, Taiwan

Aug. 2017 — Jul. 2018

### Graduate Institute of Communication Engineering, National Taiwan University

WEB DEVELOPER

- Developed the online course website with Python Django for EE2011 Signals and Systems given by NTU Speech Lab.
- Maintained NTU Speech Lab. demo websites based on Node.js, including an online LVCSR system and an audio-based search engine.

Taipei, Taiwan

Sep. 2015 — Jun. 2017

### BoniO Inc.

FOUNDING DEVELOPER & WEB DEVELOPER

- Developed PaGamO, the world's first MOOC-based multi-student educational gaming platform, used by MOOC platform Coursera.
- Developed web front-end (realtime player status, messaging, announcement systems) with Ruby on Rails, JQuery, AJAX, and MySQL.

Taipei, Taiwan

Mar. 2013 — Sep. 2013

## Skills

### Programming

- Programming in languages including Python, JavaScript, Ruby, Java, C++, Lua, Perl, MySQL, Oracle SQL.
- Python
  - Experience in Django, Theano, TensorFlow, scikit-learn
- JavaScript
  - Experience in web development including Node.js, React, Semantic UI.
- Ruby
  - Experience in web development including Ruby on Rails (RoR).
- Java
  - Experience in Android app development.

### Machine Learning

- TensorFlow
  - Experience in convolutional neural networks (CNN) for hit song prediction and music auto-tagging from raw audio (mel-spectrograms)<sup>2</sup>.
- scikit-learn
  - Logistic regression, support vector machine (SVM), and K-means clustering for pop music analysis.
- Torch (Lua)
  - Experience in sequence-to-sequence (S2S) recurrent neural networks (RNN) for natural language processing (NLP), e.g., automatic summarization and headline generation for spoken documents and news<sup>1</sup>.

<sup>1</sup>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, Dec. 2016.

<sup>2</sup>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).