

# Wei Fang

2 F., No. 42, Ln. 8, Gaoshuang Rd., Pingzhen Dist., Taoyuan 32450, Taiwan

☎ (+886) 975-565531 | ✉ b40815@gmail.com | 🏠 peskotiveswf.github.io | 📧 peskotivesgeroff | 📺 wei-fang-tw | 📧 weifangweiwei

## Research Interests

Natural language processing & computational linguistics, speech processing, machine learning & deep learning, and artificial intelligence.

## Education

### National Taiwan University (NTU)

Sep. 2013 - Jan. 2018

BACHELOR OF SCIENCE IN ENGINEERING

Taipei, Taiwan

- Major: Electrical Engineering
- GPA: 4.16/4.3

## Publications

### Multi-Label Zero-Shot Learning with Structured Knowledge Graphs | [arXiv link](#)

Nov. 2017

Chung-Wei Lee<sup>†</sup>, Wei Fang<sup>†</sup>, Chih-Kuan Yeh, Yu-Chiang Frank Wang.

SUBMITTED TO 2018 IEEE CONFERENCE ON COMPUTER VISION & PATTERN RECOGNITION (CVPR 2018)

- Proposed a deep learning architecture that incorporates knowledge graphs for multi-label zero-shot learning.

### Hierarchical Attention Model for Improved Comprehension of Spoken Content | [arXiv link](#)

Dec. 2016

Wei Fang<sup>†</sup>, Jui-Yang Hsu<sup>†</sup>, Hung-Yi Lee, Lin-Shan Lee.

PUBLISHED IN 2016 IEEE WORKSHOP ON SPOKEN LANGUAGE TECHNOLOGY (SLT 2016)

San Diego, USA

- Proposed a hierarchical attention-based neural model for the TOEFL Listening Comprehension Test by machine.

<sup>†</sup> indicates equal contribution

## Research Experience

### Undergraduate Researcher, supervised by Prof. Yu-Chiang Frank Wang

Jul. 2016 - Present

MULTIMEDIA & MACHINE LEARNING LAB, CENTER FOR IT INNOVATION, ACADEMIA SINICA

VISION & LEARNING LAB, NTU ELECTRICAL ENGINEERING

Taipei, Taiwan

- Researched on ranking learning, multi-label learning and transfer learning with deep learning techniques.
- First-authored paper "Multi-Label Zero-Shot Learning with Structured Knowledge Graphs" under review at CVPR 2018.
- Helped review conference papers for ICME 2017 and ICCV 2017.

### Undergraduate Researcher, supervised by Prof. Hung-Yi Lee & Prof. Lin-Shan Lee

Sep. 2015 - Jun. 2017

SPEECH PROCESSING & MACHINE LEARNING LAB, NTU ELECTRICAL ENGINEERING

Taipei, Taiwan

- Researched on language and speech processing, with focus on language understanding and representation learning.
- Published the paper "Hierarchical Attention Model for Improved Comprehension of Spoken Content".
- Researched on unsupervised audio word embeddings and helped develop a demo system.

## Work Experience

### Research Intern, Natural Language Processing Team

Jun. 2017 - Sep. 2017

APPLE INC.

Cupertino, USA

- Researched on input representations for neural networks to improve keyboard experience.

## Teaching Experience

### Teaching Assistant

Feb. 2016 - Jun. 2017

NATIONAL TAIWAN UNIVERSITY

Taipei, Taiwan

- EE5177/EE5184 Machine Learning (Fall 2016/Spring 2017) - Instructor: Prof. Hung-Yi Lee
- CSIE5610 Data Analytics & Modeling (Fall 2016) - Instructor: Prof. Biing-Hwang Juang (GaTech)
- EE2011 Signals and Systems (Spring 2016) - Instructor: Prof. Lin-Shan Lee

## Selected Projects

### Department Store Chatbot

Feb. 2017 - Jun. 2017

FOR CSIE5440 (INTELLIGENT CONVERSATIONAL BOT)

- Built a modular dialogue system with deep learning techniques for the task of assisting people in department stores.

### Deep Learning for Visual Question Answering

Nov. 2015 - Jan. 2016

FOR COMME5045 (DEEP AND STRUCTURED LEARNING)

- Developed an attention-based deep neural model for answering multiple-choice questions about images.
- Won **2nd Prize** of the Undergraduate Innovation Award hosted by NTUEE and **1st prize** in CommE5045 course projects.

### Large Scale Equivalence Checking and Functional Correction

Apr. 2015 - Sep. 2015

CAD CONTEST 2015, SUPERVISED BY PROF. JIE-HONG ROLAND JIANG, NTUEE

- Developed a system to identify equivalent cuts in both equivalent and nonequivalent circuits for design partitioning.
- 3rd Place** in Problem B of CAD Contest 2015 at IEEE/ACM International Conference on Computer Aided Design (ICCAD).

## Exams

### GRE

Verbal: 169, Quantitative: 170, Analytical Writing: 3.5

### TOEFL

Total: 117, Listening: 30, Speaking: 27, Reading: 30, Writing: 30

## Honors & Awards

**Dean's List (3 times)**, National Taiwan University

Fall '14, Spring '15, Fall '16

GPA in top 5% in EE department

**Conference Grant**, Foundation for the Advancement of Outstanding Scholarship

Dec. 2016

**Winner of Smart Life Track** (out of 160 teams), 2016 HackNTU Hackathon

Aug. 2016

**2nd Place** (out of 15 research projects), Undergraduate Innovation Award, NTU Electrical Engineering

May 2016

**3rd Place** (Problem B), CAD Contest 2015 at IEEE/ACM Int'l Conf. on Computer Aided Design (ICCAD)

Nov. 2015

Total of 112 teams from 12 countries for the 3 problems

**6th Place and #10 in Popularity** (out of 250 teams), 2015 HackNTU Hackathon

Aug. 2015

## Skills

**Languages** Python, C/C++, Shell scripting, Lua, Matlab, Verilog

**Libraries/Tools** PyTorch, Tensorflow, Torch

**OS** GNU/Linux (Ubuntu & Arch Linux), Mac OSX

**Other** Git,  $\text{\LaTeX}$

## Relevant Coursework

### ML/AI

Deep & Structured Learning\*, Convex Optimization\*, Intelligent Conversational Bot\*, Digital Speech Processing, Multimedia Analysis & Indexing\*<sup>†</sup>, Machine Learning\* (TA), Data Analytics & Modeling\* (TA)

### Computer Science

Algorithms, Computer Programming, Data Structure & Programming, Computer Networks, Operating Systems, Computer Architecture, Computer Graphics\*

### Mathematics

Linear Algebra, Probability & Statistics, Calculus, Differential Equations, Discrete Mathematics

### Signal Processing

Principle of Communications, Signals and Systems (TA)

\* denotes graduate-level courses    <sup>†</sup> denotes course to be done in Fall '17

## Extracurricular Activity

Vice Director of Academic Department, Student Association of NTUEE

Jun. 2015 - Sep. 2016

- Arranged academic activities such as talks, course selection, and workshops.
- Co-organized the 1st MakeNTU, a hardware hackathon for NTUEE students in May 2016.