# Chien-Sheng (Jason) **Wu**

Machine Learning · Natural Language Processing

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## Research Interests

My research interests are Machine Learning and its applications in Natural Language Processing. My recent works have focused on task-oriented dialogue systems, large-scale fact checking, affective computing, and human-robot interactions. More broadly, I am interested in developing trustworthy and empathetic machines that are able to interact with people and make their lives better.

## Education

**MPhil**, Hong Kong University of Science and Technology (HKUST), Hong Kong 2017-present

- Electronic & Computer Engineering
- Advisor: Prof. Pascale Fung

**Bachelor**, National Taiwan University (NTU), Taipei, Taiwan 2012-2016

- Electrical Engineering
- GPA Overall: 3.94/4.30 Last 60: 4.05/4.30

## Research Experience

**Salesforce Research**, California, USA Aug 2018 - present

- Deep Learning Intern (Advisor: Dr. Caiming Xiong & Dr. Richard Socher)
- Proposed global-to-local memory pointer networks for dialogue response generation. **[NeurIPS]**

**Center of AI Research (CAiRE)**, HKUST, Hong Kong 2017 - present

- Graduate Researcher (Advisor: Prof. Pascale Fung)
- Used neural ranker and lexical tags to improve large-scale fact-checking **[EMNLP]**
- Proposed memory-to-sequence dialogue systems to incorporate knowledge bases. **[ACL]**
- Proposed dynamic query memory network for system response retrieval. **[ICASSP]**
- Won second prize in Dialogue System Technology Challenges 2017. **[DSTC]**

**Human Language Technology Center (HLTC)**, HKUST, Hong Kong 2016

- Research Assistant (Advisor: Prof. Pascale Fung)
- Collaborated in building virtual empathetic android, Zara the Supergirl. **[COLING]**
- Improved real-time speech emotion recognition and sentiment analysis. **[EMNLP]**

**Automation Laboratory**, Academia Sinica, Taiwan 2016

- Research Assistant (Advisor: Dr. Jing-Sin Liu)
- Conducted comparative study on Bezier lane-change curves for unicycle robots. **[IEEE ROBIO]**

**Access IC Lab**, NTU, Taiwan 2014 - 2015

- Research Assistant (Advisor: Prof. An-Yeu Andy Wu)
- Proposed hybrid precoding strategy using DFT matrix and k-means algorithm. **[IEEE ICSPCC]**

## Publications (* Equal Contribution)

1. "Global-to-local Memory Pointer Networks for Task-Oriented Dialogue," **Chien-Sheng Wu**, C Xiong, R Socher, *NeurIPS ConvAI* 2018 (oral) & *ICLR* 2019.
2. "Improving Large-Scale Fact-Checking using Decomposable Attention Models and Lexical Tagging," **Chien-Sheng Wu***, N Lee*, P Fung, *EMNLP* 2018 (short).
3. "Mem2Seq: Effectively Incorporating Knowledge Bases into End-to-End Task-Oriented Dialog Systems," **Chien-Sheng Wu***, A Madotto*, P Fung, *ACL* 2018 (long).
4. "End-to-End Dynamic Query Memory Network for Entity-Value Independent Task-Oriented Dialog," **Chien-Sheng Wu**, A Madotto, G Winata, P Fung, *IEEE ICASSP* 2018.

5. “Empathetic Dialog Systems,” P Fung, D Bertero, P Xu, JH Park, **Chien-Sheng Wu**, A Madotto, *LREC* 2018.
6. “End-to-End Recurrent Entity Network for Entity-Value Independent Goal-Oriented Dialog Learning,” **Chien-Sheng Wu***, A Madotto*, G Winata, P Fung, *DSTC* 2017.
7. “Real-Time Speech Emotion and Sentiment Recognition for Interactive Dialogue Systems,” D Bertero, F Siddique, **Chien-Sheng Wu**, Y Wan, R Chan and P Fung, *EMNLP* 2016 (short).
8. “Towards Empathetic Human-Robot Interactions,” P Fung, D Bertero, Y Wan, A Dey, R Chan, F Siddique, Y Yang, **Chien-Sheng Wu**, R Lin, *CICLing* 2016.
9. “Zara: A Virtual Interactive Dialogue System Incorporating Emotion, Sentiment and Personality Recognition,” P Fung, A Dey, F Siddique, R Lin, Y Yang, D Bertero, W Yan, **Chien-Sheng Wu**, *COLING* 2016.
10. “Emo2Vec: Learning Generalized Emotion Representation by Multi-task Training,” P Xu, A Madotto, **Chien-Sheng Wu**, JH Park, P Fung, *EMNLP WASSA* 2018.
11. “Bilingual Character Representation for Efficiently Addressing Out-of-Vocabulary Words in Code-Switching Named Entity Recognition,” G Winata, **Chien-Sheng Wu**, A Madotto, P Fung, *ACL CS Workshop* 2018.
12. “Joint RF/Baseband Grouping-based Codebook Design for Hybrid Beamforming in mmWave MIMO Systems,” **Chien-Sheng Wu**, CH Chen, CR Tsai, and AY Wu, *IEEE ICSPCC* 2016.
13. “Simulations for Time-Optimal Trajectory Planning along Parametric Polynomial Lane-Change Curves for a Unicycle,” **Chien-Sheng Wu**, ZY Chiu, JS Liu, *IEEE ROBIO* 2017.

## Honors & Awards

**Postgraduate Studentship**, Electronic & Computer Engineering, HKUST — 2017, 2018

**Dean’s List Award**, School of Engineer, HKUST — Spring 2016

**Irving T. Ho Memorial Scholarship**, Electrical Engineering & Computer Science, NTU — 2016
- Awarded to 3 undergraduates for outstanding academic performance.

**Best Paper Award**, IEEE ICSPCC — Aug 2016

**First Place**, Hackathon, Microsoft Research Asia — Aug 2015
- Won among 34 universities across China, Taiwan, and Hong Kong.

## Work & Leadership

**Teaching Assistant**, HKUST — Spring 2018
- Building Interactive Intelligent Systems (comp4901I / elec4010I)

**Activity Director**, NTUEE Student Association — Sep 2014 - Sep 2015
- Lead 50+ students to organize 10+ activities for 1000+ NTUEE students

## Selected Projects

**Embedded System & Web Programming**, NTUEE — Fall 2016
- An interactive boxing game using Raspberry Pi, Arduino and 6-DOF sensors. [demo]
- A visualization platform retrieving the referred and cited academic papers. [demo]

**Deep and Structured Machine Learning**, NTUEE — Fall 2015
- Automatic speech recognition (ASR) systems using DNN-HMM, CRF, and RNN.
- Visual question answering (VQA) using CNN, word embeddings and random forest.

## Skills & Languages

- PyTorch, TensorFlow, Keras, Theano, Scikit-learn, Caffe, LibSVM
- Python (familiar), C++ (familiar), MATLAB (familiar), JavaScript, Verilog, LaTeX
- English (Fluent), Mandarin (Native)