

Pei-Hao (Eddy) Su

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RESEARCH INTERESTS

Spoken Dialogue Systems (SDS), Natural Language Processing, Deep Reinforcement Learning

EDUCATION

- OCT 2014- **University of Cambridge**, Cambridge, U.K.
Ph.D. in ENGINEERING | Dialogue Systems Group | Queens' College
Supervisor: Professor Steve YOUNG
Research: Deep reinforcement learning and Gaussian process for dialogue systems
- JUNE 2013 **National Taiwan University (NTU)**, Taipei, Taiwan
M.Sc. in COMMUNICATION ENGINEERING | Digital Speech Processing Lab
Supervisor: Professor Lin-shan LEE
Thesis: Personalised dialogue game for pronunciation training, GPA: 4.0/4.0
- JAN 2012 B.Sc. in ELECTRICAL ENGINEERING
Focused on speech processing and dialogue game, GPA: 3.9/4.0

RESEARCH AND INDUSTRY EXPERIENCE

- 2014- | Ph.D. Student at Dialogue Systems Group, Cambridge
Statistical Dialogue Management for Spoken Dialogue Systems
Utilise deep reinforcement learning and Gaussian process for modelling dialogue. Focus on inferencing reward from user goal in real world for on-line dialogue policy optimisation and speedup [C1-C4].
- 2011-2013 | Research Assistant at Digital Speech Processing Lab, NTU
Personalized Dialogue Game for Computer-Assisted Language Learning
Implemented MDP-based dialogue manager combined with Chinese pronunciation evaluator to recommend personalised sentences for pronunciation practicing in a dialogue [J1, C5-C8, T1].
- SUMMER 2012 | Software Engineer Intern at Trend Micro Inc., Taipei
Designed automatic stress testing on business cloud storage. Awarded Best Intern in final evaluation.

TEACHING EXPERIENCE

- SPRING 2016 | Teaching Assistant, Cambridge
Course: Statistical spoken dialogue systems (20+ master students)
- 2012, 2013 | Teaching Assistant, NTU
Course: Introduction to Digital Speech Processing (160+ enrolled students)
Course: Special Project on Digital Speech Processing (topics on dialogue systems)

AWARDS AND HONORS

- 2016 **Best Student Paper Award, ACL**
2016 **W. G. Collins Endowment Fund Award, Cambridge University Engineering Dept.**
2015 **Interspeech travel grant, ISCA**
2014-17 **Taiwan Cambridge Scholarship, Cambridge Trust & MOE, Taiwan**
2014 **Government Scholarship for Studying Abroad, MOE, Taiwan**
2012 **Advanced Speech Technologies Scholarship, EECS, NTU**
2008 **Dean's List, NTU**

PUBLICATIONS

JOURNAL:

1. P.-h. Su, C.-h. Wu, and L.-s. Lee, "A Recursive Dialogue Game for Personalized Computer-Aided Pronunciation Training", *IEEE TASLP, Jan. 2015*

CONFERENCE: Main work only, see the full list of my publications in [here](#) or [Google Scholar page](#).

1. P.-H. Su, M. Gasic, N. Mrksic, L. Rojas, S. Ultes, D. Vandyke, T.-H. Wen and S. Young, "On-line Active Reward Learning for Policy Optimisation in Spoken Dialogue Systems", *ACL 2016* (**Best Student Paper Award: 1/328; 0.3%**)
2. D. Vandyke, P.-H. Su, M. Gasic, N. Mrksic, T.-H. Wen and S. Young, "Multi-Domain Dialogue Success Classifiers for Policy Training", *ASRU 2015*
3. P.-H. Su, D. Vandyke, M. Gasic, N. Mrksic, T.-H. Wen and S. Young, "Reward Shaping with Recurrent Neural Networks for Speeding up On-Line Policy Learning in Spoken Dialogue Systems", *SigDial 2015*
4. P.-H. Su, D. Vandyke, M. Gasic, D. Kim, N. Mrksic, T.-H. Wen and S. Young, "Learning from Real Users: Rating Dialogue Success with Neural Networks for Reinforcement Learning in Spoken Dialogue Systems", *Interspeech 2015*
5. P.-h. Su, T.-h. Yu, Y.-Y. Su, and L.-s. Lee, "A Cloud-based Personalized Recursive Dialogue Game System for Computer-Assisted Language Learning", *SLaTe 2013*
6. P.-h. Su, T.-h. Yu, Y.-Y. Su, and L.-s. Lee, "NTU Chinese 2.0: A Personalized Recursive Dialogue Game for Computer-Assisted Language Learning", *SLaTe 2013*
7. P.-h. Su, Y.-B. Wang, T.-H. Wen, T.-h. Yu, and L.-s. Lee, "A Recursive Dialogue Game Framework with Optimal Policy Offering Personalized Computer-Assisted Language Learning", *Interspeech 2013*
8. P.-h. Su, Y.-B. Wang, T.-h. Yu, and L.-s. Lee, "A Dialogue Game Framework with Personalized Training using Reinforcement Learning for Computer-Assisted Language Learning", *ICASSP 2013*

THESIS:

1. P.-h. Su, "A Dialogue Game Framework Offering Personalized Pronunciation Training for Computer-Assisted Language Learning", **Master Thesis**, National Taiwan University, June 2013

TALK:

1. "Transfer Learning", Cambridge University MLG Seminar, with Yingzhen Li, Feb. 2015
2. "On-line Active Reward Learning for Policy Optimisation in SDS", Toshiba Research, 8 June 2016
3. "Practical and Scalable Reinforcement Learning for SDS", Academia Sinica Taiwan, 21 June 2016
4. "Practical and Scalable Reinforcement Learning for SDS", NTU Speech Lab, 24 June 2016
5. "On-line Active Reward Learning for Policy Optimisation in SDS", Maluuba Research, 2 Aug 2016

PROFICIENCY

PROGRAMMING: Python, Theano, C/C++, MATLAB, L^AT_EX
LANGUAGE: English (fluent), Chinese (native), Taiwanese (native), German (basic)
INTERESTS: Technology, Bass, Guitar, Travelling
LEADERSHIP: Vice President, Cambridge Taiwanese Society

REFERENCE

Professor Steve Young - University of Cambridge Engineering Department - sjy@eng.cam.ac.uk
Dr. Milica Gasic - University of Cambridge Engineering Department - mg436@cam.ac.uk
Professor Lin-shan Lee - National Taiwan University EECS Department - lslee@gate.sinica.edu.tw