Pei-Hao (Eddy) Su

E-mail: phs26@cam.ac.uk URL: http://mi.eng.cam.ac.uk/~phs26/

Research Interests

Spoken Dialogue Systems, Dialogue Modelling, Reinforcement Learning, Reward Inferencing, Deep Learning, Natural Language Processing, Computer-Assisted Language Learning

Education

Oct 2014- **University of Cambridge**, Cambridge, U.K.
Ph.D. in Engineering | Dialogue Systems Group | Queens' College
Supervisor: Professor Steve Young
Research: Utilising deep learning methods for improving RL-based dialogue modelling

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
Advisor: Professor Lin-shan Lee
Focused on speech processing and dialogue game, Gpa: 3.9/4.0

Awards and Honors

2016 **W. G. Collins Endowment Fund Award**, *Cambridge University Engineering Dept.*
2015 **Interspeech 2015 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*

Research and Work Experience

2014- Ph.D. Student at Dialogue Systems Group, Cambridge
Deep Learning for Policy Optimisation in Spoken Dialogue Systems
Utilise deep learning methods for modelling sequential interaction. Focus on inferencing reward from user goal in real world for online dialogue policy optimisation and speedup. The model's scalability to multi-domains is also emphasised [C1-C3].

2016 Teaching Assistant, Cambridge
Course: Statistical spoken dialogue systems (20+ master students)

2011-2013 Research Assistant at Digital Speech Processing Lab, NTU
Personalized Dialogue Game for Computer-Assisted Language Learning
Designed a dialogue game for non-native Chinese learners using statistical dialogue manager and pronunciation evaluator (http://chinese.ntu.edu.tw/). The system recommended personalized sentences for practicing during the dialogue [J1, C4-C6, D1, T1].

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)

Summer 2012 Software Eng. Intern at Trend Micro Inc., Taipei
Designed automatic stress testing cases for business cloud storage setup process to confirm system stability. Awarded Best Intern in the final evaluation.

Publications

Journal:

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

Conference: Main work only, see the full list of my publications in 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", *Proc. ACL 2015*
2. D. Vandyke, **P.-H. Su**, M. Gasic, N. Mrksic, T.-H. Wen and S. Young, "Multi-Domain Dialogue Success Classifiers for Policy Training", *Proc. 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", *Proc. 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", *Proc. 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", *Proc. 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", *Proc. SLaTe (Demo) 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", *Proc. 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", *Proc. 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 Spoken Dialogue Systems", Toshiba Research Cambridge, June 2016

Proficiency and Other

Programming:	C/C++, Objective-C, MATLAB, Python, HTML5, Shell Script, LaTeX
Language:	English (fluent), Chinese (native), Taiwanese (native), German (basic)
Interests:	Technology, Bass, Guitar, Travelling
Leadership:	Vice President, Cambridge Taiwanese Society