Pei-Hao (Eddy) Su

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Education

2014-Present **University of Cambridge**, Cambridge, U.K.
Ph.D. in Engineering | Dialogue Systems Group | Queens' College
Supervisor: Professor Steve Young
Thesis: Reward estimation and reinforcement learning for dialogue systems
Research: Deep reinforcement learning, Gaussian processes, Dialogue, NLP

2012-2013 **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

2007-2012 B.Sc. in Electrical Engineering
Focused on speech processing and dialogue game, Gpa: 3.9/4.0

Research and Industry Experience

2017 Summer | Research Intern at Facebook AI Research, Menlo Park

2014-Present | 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 [P2-P5].

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 [P1, P6-P10].

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

Fall 2016 | Supervisor, Murray Edwards College, Cambridge University
Course: Introduction to Python. Contribute to teaching female undergrads in engineering.

2016-2017 | Supervisor, Engineering Department, Cambridge University
Course: Statistical Dialogue Systems (30+ MPhil students)
Course: Reinforcement Learning (30+ MPhil students)
Project: Sample-efficient Reinforcement Learning for Dialogue Management (2 MPhil students)

2012, 2013 | Teaching Assistant, EECS, NTU
Course: Introduction to Digital Speech Processing (160+ enrolled students)
Course: Special Project on Digital Speech Processing (topics on dialogue systems)

Awards and Honours

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

Publications

First author only, see the full list of my publications at Google Scholar page.

1. P.-h. Su, C.-h. Wu, and L.-s. Lee, "A Recursive Dialogue Game for Personalized Computer-Aided Pronunciation Training", **IEEE TASLP, January 2015**
2. P.-H. Su, P. Budzianowski, S. Ultes, M. Gasic and S. Young, "Sample-efficient Actor-Critic Reinforcement Learning with Supervised Data for Dialogue Management", **SigDial 2017**
3. 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 accepted, 1288 submitted; 0.07%)**
4. 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 SDS", **SigDial 2015**
5. 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**
6. 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 (CALL)", **SLaTe 2013**
7. 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**
8. 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 CALL", **Interspeech 2013**
9. 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**
10. P.-h. Su, "A Dialogue Game Framework Offering Personalized Pronunciation Training for Computer-Assisted Language Learning", **Master Thesis**, National Taiwan University, June 2013

Invited Talks

- **Reward Estimation for Dialogue Policy Optimisation**
  - General Motor Advanced Technical Centre, Isreal
- **On-line Active Reward Learning for Policy Optimisation in SDS**
  - Toshiba Research Cambridge, Microsoft Research Montreal, University of Cambridge Computer Lab
- **Practical Human-in-the-loop Reinforcement Learning for SDS**
  - Apple Siri, Cambridge
- **Practical and Scalable Reinforcement Learning for SDS**
  - Academia Sinica Taiwan, National Taiwan University
- **Beyond Siri: Towards Fully Data-driven Conversational Agents**
  - Queens' College, Cambridge
- **Transfer Learning**
  - University of Cambridge Machine Learning Group Seminar (with Yingzhen Li)

Proficiency

Leadership:	Vice President, Cambridge Taiwanese Society, 2015-2016
Programming:	Python, Tensorflow, Theano, C/C++, MATLAB, LaTeX
Language:	English (fluent), Chinese (native), Taiwanese (native), German (basic)
Interests:	Technology, Bass, Guitar, Travelling

References

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