

Shang-Yu Su 蘇上育

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RESEARCH INTERESTS

Deep Learning, Natural Language Processing, Dialogue Systems

EDUCATION

National Taiwan University (NTU) 2018/09 –

Doctor of Philosophy in Computer Science;

Advisor: Yun-Nung (Vivian) Chen

National Taiwan University (NTU) 2017/02 – 2018/06

Master of Science in Computer Science; GPA: 4.3 / 4.3

Advisor: Yun-Nung (Vivian) Chen

National Taiwan University (NTU) 2012/09 – 2017/01

Bachelor of Science in Electrical Engineering; GPA: 3.69 / 4.3 (overall) 4.10 / 4.3 (last 60)

RESEARCH EXPERIENCES

Microsoft 2018/03 – 2018/06

Research Intern

Advisor: Xiujun Li and Jianfeng Gao

- **Dialogue Policy Optimization**
 - Published in ACL [2] and EMNLP[1]

NTU CSIE Machine Intelligence and Understanding Lab (MiuLab) 2016/09 –

Undergraduate / Graduate Research Assistant

Advisor: Yun-Nung (Vivian) Chen

- **Language Understanding:** proposed a role-based contextual model to learn different speaker roles independently regarding the various speaking patterns in the multi-turn dialogues. The proposed approach achieves 5.1% improvement on a benchmark multi-domain human-human dialogue dataset. An attention-based network further leverages temporal information and speaker roles for better understanding.
 - Published in ASRU 2017 [5] and IJCNLP 2017 [6]
- **Attention Modeling:** investigated different attentional models to leverage different dialogue patterns for improving dialogue-related tasks, where the attention mechanism includes speaker role modeling and time-aware decaying functions in human-human conversations. The proposed learnable time-decay attention elegantly integrates both content-aware and time-aware perspectives and speaker-role modeling concept.
 - Published in NAACL-HLT 2018 [4]
- **Dialogue Policy Optimization:** used a role-based contextual model to improve policy learning and achieved 6.3% improvement. Another work proposed an intrinsically motivated dialogue management by hierarchical reinforcement learning, which utilizes the RNN-based hierarchical controller framework to enable the agent to take multiple actions in a single dialogue turn.
 - Published in IJCNLP 2017 [6]
 - Viscovery Selected Prize in NTU CSIE Undergraduate Research Contest

- **Language Generation:** introduced a NLG model with a hierarchical decoder that leverages various linguistic patterns and further designs several corresponding training and inference techniques. The proposed method achieves 103.1%, 53.1%, 152.8%, and 41.4% improvement in BLEU, ROUGE-1, ROUGE-2, and ROUGE-L respectively with a smaller model than traditional sequence-to-sequence model.
 - Published in NAACL-HLT 2018 [3]

HONOR & AWARDS

Bronze Medal, Best Popularity Award, Best Defense Award

SuZhou, China

UXDAward 2016

2016/11

- UXDAward is a user experience design contest hosted by UXPA China, the biggest and the most influential UX organization in China. We won Bronze Medal, Best Popularity Award, and Best Defense Award among over 500 teams.
- Responsible for developing a webpage prototype of our product idea
- Collaborated with four designers and one iOS engineer

Viscovery Selected Prize

NTU CSIE Undergraduate Research Contest

- The project “Intrinsically Motivated Dialogue Management by Hierarchical Reinforcement Learning” received the selected prize by Viscovery Inc. .

PUBLICATIONS

- [1] Shang-Yu Su, Xiujun Li, Jianfeng Gao, Jingjing Liu, and Yun-Nung Chen, " Discriminative Deep Dyna-Q: Robust Planning for Dialogue Policy Learning," (to appear) in *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (EMNLP 2018)*, Brussels, Belgium, October 31-November 4, 2018. ACL
- [2] Baolin Peng, Xiujun Li, Jianfeng Gao, Jingjing Liu, Kam-Fai Wong, and Shang-Yu Su, “Deep Dyna-Q: Integrating Planning for Task-Completion Dialogue Policy Learning," *Proceedings of The 56th Annual Meeting of the Association for Computational Linguistics (ACL 2018)*, Melbourne, Australia, July 15-20, 2018
- [3] Shang-Yu Su, Kai-Ling Lo, Yi-Ting Yeh, and Yun-Nung Chen, “Natural Language Generation by Hierarchical Decoding with Linguistic Patterns," *Proceedings of The 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2018)*, New Orleans, USA, June 1-6, 2018
- [4] Shang-Yu Su, Pei-Chieh Yuan, and Yun-Nung Chen, “How Time Matters: Learning Time-Decay Attention for Contextual Spoken Language Understanding in Dialogues," *Proceedings of The 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT 2018)*, New Orleans, USA, June 1-6, 2018
- [5] Shang-Yu Su^{*}, Po-Chun Chen^{*}, Ta-Chung Chi^{*}, and Yun-Nung Chen, “Dynamic Time-Aware Attention to Speaker Roles and Contexts for Spoken Language Understanding,” *Proceedings of 2017 IEEE Workshop on Automatic Speech Recognition and Understanding (ASRU 2017)*, Okinawa, Japan, December 16-20, 2017 (**co-first author**)
- [6] Shang-Yu Su^{*}, Ta-Chung Chi^{*}, Po-Chun Chen^{*}, and Yun-Nung Chen, “Speaker Role Contextual Modeling for Language Understanding and Dialogue Policy Learning,” *Proceedings of The 8th International Joint Conference on Natural Language Processing (IJCNLP 2017)*, Taipei, Taiwan, November 27-December 1, 2017. (**co-first author**)

WORKING EXPERIENCES

National Taiwan University

2017/02 –

Teaching Assistant

- [CSIE5431] Applied Deep Learning (2017 Fall)
- [EE5184] Machine Learning (2017 Fall)
- [CSIE5440] Intelligent Conversational Bot (2017 Spring)
- [CommE5045] Machine Learning and Having It Deep and Structured (2017 Spring & 2016 Fall)

Yahoo!

2016/09 – 2017/03

Software Engineering Intern, ABU Media Engineering Group

- Rebuilt Yahoo! News Taiwan website with new technologies, which consumes over 2.2 million daily users (No.1 in Taiwan)
- Developed Web front-end interfaces with responsive webpage design and high performance
- Engaged in Agile software development with Scrum
- Collaborated with full-time engineers, designers, and a project manager

Yahoo!

2016/07 – 2016/08

Software Engineering intern, ABU E-Commerce C2C Engineering Group

- Built an iOS app to enable video live streaming and real-time text chatting in less than 1.5 months, which includes the app design and implementation, a back-end server, a database storage, and the integration of OAuth2 API and live-streaming function
- Engaged in Agile software development with Scrum
- Collaborated with an engineering intern and a designer intern

Microsoft

2015/07 – 2016/06

Research & Development Intern, OAS Taipei Team

- Completed several data visualization features and integrated them into a company internal system, the works cover front-end development and backend-database integration
- Converted the web front-end UI into responsive web design (RWD) and functioned gracefully in all the modern browsers
- Refined the UI of Power Point online

Tutor

2013/03 –

Tutor of Programming, Physics, Chemistry, Math, English

- 4-year experience, have taught over 13 students
- Taught web programming (HTML5, CSS3 and JavaScript), Java and basic CS knowledge
- Taught junior and senior high school subjects including *Physics, Chemistry, Math, English, ... etc.*

PROFESSIONAL ACTIVITIES

ACL Student Research Workshop

2018

Program Committee

PROFICIENT SKILLS

Languages: Mandarin Chinese (native); English (fluent); Japanese (elementary level)

Programming:

- Deep learning framework: Keras, TensorFlow, PyTorch
- Programming language: Python, C, C++, Matlab

- Web development: HTML5, CSS3, JavaScript, jQuery, React.js (with Flux and Redux), AngularJS, Node.js, express.js, Firebase
 - App development: React-Native
- Certifications & Training:** JLPT N3

EXTRACURRICULAR ACTIVITIES

The Night of NTU EE 2012 – 2016
Dance show choreographer, performer

- Most significant event for EE students held each year showcasing the talents of EE students.
- Choreographed the shows and taught the students dancing

NTU POP DANCE CLUB 2012/10 – 2014/06
Performer, choreographer

- Have been performer in several performances
- Choreographed several shows and taught classes

REFERENCES

- Dr. Yun-Nung (Vivian) Chen
 Assistant Professor of National Taiwan University, yvchen@csie.ntu.edu.tw
- Dr. Jianfeng Gao
 Partner Research Manager of Microsoft, jfgao@microsoft.com
- Dr. Hung-Yi Lee
 Assistant Professor of National Taiwan University, hungyilee@ntu.edu.tw