Shang-Yu Su

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RESEARCH INTERESTS

Dialogue Systems, Natural Language Processing with Deep Learning

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 (admitted to PhD program)
Master of Science in Computer Science;
Advisor: Yun-Nung (Vivian) Chen

National Taiwan University (NTU) 2012/09 – 2017/01
Bachelor of Science in Electrical Engineering;

RESEARCH EXPERIENCES

Amazon 2019/04 – 2019/08
Applied Scientist Intern
Advisors: Dilek Hakkani-Tur and Mihail Eric

- **Knowledge-Grounded Response Generation**

Microsoft 2018/03 – 2018/06
Research Intern
Advisors: Jianfeng Gao and Xiujun Li

- **Dialogue Policy Optimization**
  - Published in ACL 2018 [12] and EMNLP 2018 [11]

NTU CSIE Machine Intelligence and Understanding Lab (MiuLab) 2016/09 –
Undergraduate / Graduate Research Assistant
Advisor: Yun-Nung (Vivian) Chen

- **Dual Learning of Language Understanding and Generation**
  - Published in ACL 2019 [2], and ACL 2020 [1]
- **Language Understanding**
  - Published in ASRU 2017 [15], IJCNLP 2017 [16], ICASSP 2019 [5], ACL 2019 [2], and ACL 2020 [1]
- **Attention Modeling**
  - Published in NAACL-HLT 2018 [14] and ICASSP 2019 [5]
- **Dialogue Policy Optimization**
  - Published in IJCNLP 2017 [16], EMNLP 2018 [11], and ACL 2018 [12]
- **Language Generation**
  - Published in NAACL-HLT 2018 [13], SLT 2018 [10], DSTC7 [6][7], ACL 2019 [2], and ACL 2020 [1]
- **Response Selection**
  - Published in DSTC7 [8][9]

- **Music Information Retrieval**
  - Published in ICASSP 2019 [3]
- **Deep Learning**
  - Published in ICASSP 2019 [4]
- **Multimodal Dialogues**
  - Published in DSTC7 [6]

PUBLICATIONS

[1] **Shang-Yu Su**, Chao-Wei Huang, and Yun-Nung Chen, "Towards Unsupervised Language Understanding and Generation by Joint Dual Learning," in *Proceedings of The 58th Annual Meeting of the Association for Computational Linguistics (**ACL 2020**), Seattle, USA, July 5-July 10, 2020. ACL.*

[2] **Shang-Yu Su**, Chao-Wei Huang, and Yun-Nung Chen, "Dual Supervised Learning for Natual Language Understanding and Generation," in *Proceedings of The 57th Annual Meeting of the Association for Computational Linguistics (**ACL 2019**), Florence, Italy, July 28-Aug 2, 2019. ACL.*

[3] Yu-An Wang*, Yu-Kai Huang*, Tzu-Chuan Lin*, **Shang-Yu Su**, and Yun-Nung Chen, "Modeling Melodic Feature Dependency with Modularized Variational Auto-Encoder," in *Proceedings of The 44th IEEE International Conference on Acoustics, Speech, and Signal Processing (**ICASSP 2019***), Brighton, U.K., May 12-17, 2019. IEEE.

[4] **Shang-Yu Su**, Shan-Wei Lin, and Yun-Nung Chen, "Compound Variational Auto-Encoder," in *Proceedings of The 44th IEEE International Conference on Acoustics, Speech, and Signal Processing (**ICASSP 2019***), Brighton, U.K., May 12-17, 2019. IEEE.

[5] **Shang-Yu Su**, Pei-Chieh Yuan, and Yun-Nung Chen, "Dynamically Context-Sensitive Time-Decay Attention for Dialogue Modeling," in *Proceedings of The 44th IEEE International Conference on Acoustics, Speech, and Signal Processing (**ICASSP 2019***), Brighton, U.K., May 12-17, 2019. IEEE.

[6] Yi-Ting Yeh, Tzu-Chuan Lin, Hsiao-Hua Cheng, Yi-Hsuan Deng, **Shang-Yu Su**, and Yun-Nung Chen, "Reactive Multi-Stage Feature Fusion for Multimodal Dialogue Modeling," in *The 7th Dialog System Technology Challenge (**DSTC7**) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI 2019**)*, Honolulu, Hawaii, USA, 2019.

[7] Hao-Tong Ye, Kai-Ling Lo, **Shang-Yu Su**, and Yun-Nung Chen, "Knowledge-Grounded Response Generation with Deep Attentional Latent-Variable Model," in *The 7th Dialog System Technology Challenge (**DSTC7**) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI 2019**)*, Honolulu, Hawaii, USA, 2019.
NOTE: Also published in *Computer Speech and Language* (Journal, 2020)

[8] Ting-Rui Chiang, Chao-Wei Huang, **Shang-Yu Su**, and Yun-Nung Chen, "Learning Multi-Level Information for Dialogue Response Selection by Highway Recurrent Transformer," in *The 7th Dialog System Technology Challenge (**DSTC7**) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI 2019**)*, Honolulu, Hawaii, USA, 2019.
NOTE: Also published in *Computer Speech and Language* (Journal, 2020)

[9] Chao-Wei Huang, Ting-Rui Chiang, **Shang-Yu Su**, and Yun-Nung Chen, "RAP-Net: Recurrent Attention Pooling Networks for Dialogue Response Selection," in *The 7th Dialog System Technology Challenge (**DSTC7**) in Proceedings of Thirty-Third AAAI Conference on Artificial Intelligence (**AAAI 2019**)*, Honolulu, Hawaii, USA, 2019.
NOTE: Also published in *Computer Speech and Language* (Journal, 2020)

[10] **Shang-Yu Su** and Yun-Nung Chen, "Investigating Linguistic Pattern Ordering in Hierarchical Natural Language Generation," in *Proceedings of 7th IEEE Workshop on Spoken Language Technology (**SLT 2018**)*, Athens, Greece, December 18-21, 2018. IEEE.

[11] **Shang-Yu Su**, Xiujun Li, Jianfeng Gao, Jingjing Liu, and Yun-Nung Chen, "Discriminative Deep Dyna-Q: Robust Planning for Dialogue Policy Learning," in *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing (**EMNLP 2018**)*, Brussels, Belgium, October 31-November 4, 2018. ACL

[12] 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," in *Proceedings of The 56th Annual Meeting of the Association for Computational Linguistics (**ACL 2018**),* Melbourne, Australia, July 15-20, 2018

[13] **Shang-Yu Su**, Kai-Ling Lo, Yi-Ting Yeh, and Yun-Nung Chen, "Natural Language Generation by Hierarchical Decoding with Linguistic Patterns," in *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

[14] **Shang-Yu Su**, Pei-Chieh Yuan, and Yun-Nung Chen, "How Time Matters: Learning Time-Decay Attention for Contextual Spoken Language Understanding in Dialogues," in *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

[15] **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," in *Proceedings of 2017 IEEE Workshop on Automatic Speech Recognition and Understanding (**ASRU 2017**)*, Okinawa, Japan, December 16-20, 2017 **(co-first author)**

[16] **Shang-Yu Su***, Ta-Chung Chi*, Po-Chun Chen*, and Yun-Nung Chen, "Speaker Role Contextual Modeling for Language Understanding and Dialogue Policy Learning," in *Proceedings of The 8th International Joint Conference on Natural Language Processing (**IJCNLP 2017**)*, Taipei, Taiwan, November 27-December 1, 2017. **(co-first author)**

PROFESSIONAL ACTIVITIES

All served as *Program Committee (Dialogue and Interactive Systems)* or *Reviewer*:
ACL (2019, 2020)
EMNLP (2019, 2020)
IJCNLP (2019, 2020)
AACL (2020)
COLING (2020)
ACL Student Research Workshop (2018)
Dialog System Technology Challenges (DSTC) (2019, 2020)
NLP4ConvAI Workshop (2019, 2020)
Computer Speech & Language (2019)
ACM ICMI-CATSLU (2019)
IEEE Signal Processing Letter (2019)
IEEE Access (2019)
IEEE DataCom (2019)
Transactions on Audio, Speech and Language Processing (2020)
AAAI (2021)

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..

Appier Scholarship
Appier Inc.
- Travel grant for EMNLP 2018.
- Travel grant for ACL 2019.

Verizon Media Scholarship Program
Verizon Media Inc.
- Travel grant for ACL 2019.

WORKING EXPERIENCES

National Taiwan University 2017/02 –
Teaching Assistant
- [CSIE5431] Applied Deep Learning (2017 Fall, 2019 Spring, 2020 Spring)
- [CSIE5400] Artificial Intelligence (2018 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.*

PROFICIENT SKILLS

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

Programming:

- Deep learning framework: PyTorch, Tensorflow
- Programming language: Python, C++
- 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

REFERENCES

- Dr. Yun-Nung (Vivian) Chen
  Assistant Professor of National Taiwan University, yvchen@csie.ntu.edu.tw
- Dr. Dilek Hakkani-Tur
  Senior Principal Applied Scientist of Amazon, hakkanit@amazon.com
- Dr. Jianfeng Gao
  Partner Research Manager of Microsoft, jfgao@microsoft.com