YINPEI DAI

daiyinpei123@163.com ⋄ https://yinpeidai.github.io

EDUCATION

Tsinghua University Beijing, China
M.S. in Electronic Engineering. Advised by Prof. Zhijian Ou. 2016.09 - 2019.07

Tsinghua University Beijing, China
B.S. in Mathematics and Physics. GPA: 91/100. 2012.09 - 2016.07

PUBLICATIONS

(*) denotes equal contribution

- **Yinpei Dai**, Hangyu Li, Yongbin Li, Jian Sun, Fei Huang, Luo Si, and Xiaodan Zhu, *"Preview, Attend and Review: Schema-Aware Curriculum Learning for Multi-Domain Dialog State Tracking"*, in ACL, 2021
- Bo-Hsiang Tseng, **Yinpei Dai**, Florian Kreyssig, and Bill Byrne. *"Transferable Dialogue Systems and User Simulators"*, in ACL, 2021
- Yajing Sun, Yong Shan, Chengguang Tang, Yue Hu, **Yinpei Dai**, Jing Yu, Jian Sun, Fei Huang, and Luo Si, *"Unsupervised Learning of Deterministic Dialogue Structure with Edge-Enhanced Graph Auto-Encoder"*, in AAAI, 2021
- Haitao Mi, Qiyu Ren, **Yinpei Dai**, Yifan He, Jian Sun, Yongbin Li, Jing Zheng, and Peng Xu. *"Towards Generalized Models for Beyond Domain API Task-oriented Dialogue"*, in DSTC Workshop, AAAI, 2021
- **Yinpei Dai***, Yichi Zhang*, Hong Liu, Zhijian Ou, Yi Huang, and Junlan Feng, *"Elastic CRFs for Open-Ontology Slot Filling"*, in Applied Sciences, 2021
- **Yinpei Dai**, Hangyu Li, Chengguang Tang, Yongbin Li, Jian Sun, and Xiaodan Zhu, *"Learning Low-Resource End-To-End Goal-Oriented Dialog for Fast and Reliable System Deployment"*, in ACL, 2020
- Yichi Zhang, **Yinpei Dai**, Zhijian Ou, Huixin Wang, Junlan Feng, *"Improved Learning of Word Embeddings with Word Definitions and Semantic Injection"*, in INTERSPEECH, 2020
- Lina Rojas-Barahona, Bo-Hsiang Tseng, **Yinpei Dai**, Clare Mansfield, Osman Ramadan, Stefan Ultes, Michael Crawford, and Milica Gasic, *"Deep Learning for Language Understanding of Mental Health Concepts Derived From Cognitive Behavioural Therapy"*, in LOUHI Workshop, EMNLP, 2018
- **Yinpei Dai**, Zhijian Ou, Dawei Ren, and Pengfei Yu, *"Tracking of Enriched Dialog States for Flexible Conversational Information Access"*, in ICASSP, 2018

EXPERIENCE

Alibaba DAMO Academy Beijing, China
Algorithm Engineer - Natural Language Processing 2019.07 - till date
Focused on R&D in conversational AI and advancing the state-of-the-art in task-oriented dialog systems

- Proposed Meta-Dialog System to learn low-resource end-to-end dialog. Combined the MAML approach and human-machine collaboration for fast and reliable system deployment (paper accepted to ACL 2020). Developed products accordingly and improved online success rate by 5%+ for all applied business.
- Proposed Schema-Aware Dialog State Tracker to solve multi-turn slot-filling problems. Designed a model-agnostic framework to exploit schema and curriculum structure information (paper accepted to ACL 2021).
- Proposed a joint optimization framework for user simulators and dialog systems. Demonstrated the effectiveness in unseen domain adaptation and compositional domain generalization (paper accept to ACL 2021).
- Took part in the Ninth Dialog System Technology Challenge (DSTC9) Track 1. Proposed error-fixing ensemble method and entity tracking to improve performance. Won 1st place in objective evaluation.
- Proposed semi-supervised pre-training to inject useful annotations into pre-trained models. Leveraged consistency regularization to integrate dialog act labels in pre-training (paper submitted).
  Developing the largest pre-trained dialog model up to 20 billion parameters for task-oriented dialog.

Speech Processing and Machine Intelligence Lab, Tsinghua University Beijing, China
Research Assistant 2016.09 - 2019.07
Supervisor: Prof. Zhijian Ou

- Generalized traditional representations of dialog states to contain sentiments and multi-values for each slot. Designed new tracking models for more flexible information access (paper accepted to ICASSP 2018).
- Studied zero-shot natural language understanding in open-ontology slot filling. Proposed to use slot descriptions to create new potential functions for CRF models (paper accepted to Applied Science 2021).

Dialogue Systems Group, University of Cambridge Cambridge, UK
Research Intern 2018.06 - 2018.09
Supervised by Prof. Milica Gašić

- Investigated the performance of different distributed representations and deep neural networks on a large-scale mental health dataset (paper accepted in LOUHI 2018).
- Built a psychotherapy-oriented chatbot for mental health.

HONORS AND AWARDS

- 1st place in track1 objective evaluation, the Ninth Dialog System Technology Challenge (DSTC9) 2020
- National Scholarship, First Class Honor, Tsinghua University 2014
- Samsung Scholarship, Second Class Honor, Tsinghua University 2013

PROFESSIONAL SERVICE

- Reviewer - IEEE Access
- Reviewer - AAAI 2021
- Reviewer - EMNLP 2021
- Reviewer - AAAI 2022

INVITED TALK

- *Learning Low-Resource End-To-End Goal-Oriented Dialog* 2020.08.21
  - Presented at Dialog Systems and Machine Learning Group, Heinrich Heine University Düsseldorf
- *Advanced Markov Chain Monte Carlo algorithms* 2014.10.08
  - Presented at Integrated Vision and Intelligent Perception Group, Tsinghua University

TEACHING

- TA, Theory and Applications of Probabilistic Graphical Models (80230652), THU, Spring 2018
- TA, Computer Program Design I (30230672), THU, Fall 2017
- TA, Probability and Stochastic Processes I (30230742), THU, Spring 2017
- TA, Probability and Stochastic Processes II (30230783), THU, Fall 2016

SKILLS

Programming	Python, Shell, C/C++, MySQL, Matlab, HTML/CSS
Libraries	Tensorflow, Pytorch, Transformers, Spacy, NLTK, Scikit-learn
Web Framework	Django, Flask
Tools	LaTeX, Git, Docker