

# YINPEI DAI

Email: yinpei.dyp@alibaba-inc.com ◇ Webpage: <https://yinpeidai.github.io> ◇ Phone: +86 18811369685

## EDUCATION

<b>Tsinghua University</b> M.S. in Information and Communication Engineering. Advised by Prof. Zhijian Ou.	Beijing, China 2016.09 - 2019.07
<b>Tsinghua University</b> B.S. in Mathematics and Physics. GPA: 91/100.	Beijing, China 2012.08 - 2016.07

## PUBLICATIONS

In chronological order; (\*) denotes equal contribution

- [1]. Wanwei He\*, **Yinpei Dai\***, Yinhe Zheng, Yuchuan Wu, Zheng Cao, et al, “*GALAXY: A Generative Pre-trained Model for Task-Oriented Dialog with Semi-Supervised Learning and Explicit Policy Injection*”, in AAAI 2022
- [2]. **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-IJCNLP, 2021
- [3]. Bo-Hsiang Tseng, **Yinpei Dai**, Florian Kreyssig, and Bill Byrne. “*Transferable Dialogue Systems and User Simulators*”, in ACL-IJCNLP, 2021
- [4]. 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
- [5]. **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
- [6]. **Yinpei Dai**, Huihua Yu, Yixuan Jiang, Chengguang Tang, Yongbin Li, and Jian Sun, “*A Survey on Dialog Management: Recent Advances and Challenges*”, in Arxiv, 2020
- [7]. 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
- [8]. **Yinpei Dai**, Zhijian Ou, Dawei Ren, and Pengfei Yu, “*Tracking of Enriched Dialog States for Flexible Conversational Information Access*”, in ICASSP, 2018

## EXPERIENCE

<b>Alibaba DAMO Academy</b> Senior Algorithm Engineer Focusing on R&D in conversational AI and advancing the state-of-the-art in task-oriented dialog systems	Beijing, China 2019.07 - till date
<ul style="list-style-type: none"><li>• 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 published at ACL 2020). Developed products accordingly and improved online success rate by 5%+ for all applied businesses.</li><li>• Proposed a model-agnostic Dialog State Tracking framework to exploit both schema and curriculum structure information. Achieved SOTA results on MultiWOZ understanding task. (published at ACL-IJCNLP 2021).</li><li>• Proposed a joint optimization framework for user simulators and dialog systems. Demonstrated the effectiveness of self-play dialog augmentation in domain adaptation (paper published at ACL-IJCNLP 2021).</li><li>• Leveraged consistency regularization to inject useful dialog annotations into models via semi-supervised pre-training. Achieved SOTA results on MultiWOZ policy and generation tasks. (accepted by AAAI 2022). Developing the largest pre-trained dialog model and the largest Chinese benchmark in task-oriented dialog.</li></ul>	

## Speech Processing and Machine Intelligence Lab, Tsinghua University

Research Assistant

Supervisor: Prof. Zhijian Ou

Beijing, China

2016.09 - 2019.07

- 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 published at ICASSP 2018).
- Developed a new sampling method that utilized a mixture of auxiliary trans-dimensional distributions for reversible jumping and a stochastic approximation method to estimate log likelihood ratios.

## Dialogue Systems Group, University of Cambridge

Research Intern

Supervisor: Prof. Milica Gašić (Now at Heinrich Heine University Düsseldorf)

Cambridge, UK

2018.06 - 2018.09

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

## HONORS AND AWARDS

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- First prize of National Scholarship, Tsinghua University 2014.12
- Samsung Scholarship, Tsinghua University 2013.12

## PROFESSIONAL SERVICE

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- Reviewer - IEEE Access
- Reviewer - AAAI 2021/2022
- Reviewer - EMNLP 2021
- Reviewer - TASLP 2022
- Reviewer - JAIR 2022
- Reviewer - ACL Rolling Review

## INVITED TALK

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- *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

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- 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

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<b>Programming</b>	Python, Shell, C/C++, MySQL, Matlab, HTML/CSS
<b>Libraries</b>	Tensorflow, Pytorch, Transformers, Spacy, NLTK, Scikit-learn
<b>Web Framework</b>	Django, Flask
<b>Tools</b>	L <sup>A</sup> T <sub>E</sub> X, Git, Docker
<b>English Test</b>	Toefl 103, GRE V159 Q170 AW3.5