

# Yinpei Dai

## Curriculum Vitae

Rohm Building 6-110

Tsinghua University

Beijing, 100084, China

+86 18811369685

✉ dyp16@mails.tsinghua.edu.cn

📄 yinpeidai.github.io/

## Education

- 09/2016 - Present **Tsinghua University**, Beijing, China.
- M.Sc. in Information and Communication Engineering, Department of Electrical Engineering.
  - Advised by Prof. [Zhijian Ou](#).
  - Research interests: dialogue systems, natural language processing, machine learning.
- 09/2012 - 07/2016 **Tsinghua University**, Beijing, China.
- B.Sc. in Mathematics and Physics, Department of Physics.
  - Major GPA: 91/100; Overall GPA: 91/100.
  - Recipient of the first-class national scholarship.
  - Bachelor Thesis: Inference and Learning Algorithms for State-space Models.

## Research Experience

- 09/2016 - Present **Speech Processing and Machine Intelligence Lab**, *Tsinghua University*, Beijing, China.  
Advisor: Prof. [Zhijian Ou](#).
- Generalized the traditional representations of dialogue states. Designed new dialogue state tracking models for flexible information access. (Paper accepted in ICASSP 2018)
  - Built a Chinese multi-domain task-oriented dialogue system with enriched dialogue state tracking. Applied for a patent. (Patent code: JBP181115230BJ)
  - Studied zero-shot natural language understanding. Proposed new neural CRF models for open-ontology slot filling. (Paper submitted to ICASSP 2019)
  - Building reliable customer service dialogue agents for China Mobile Research Institute. (Project code: MCM20170301)
- 06/2018 - 09/2018 **Dialogue Systems Group**, *University of Cambridge*, Cambridge, U.K.  
Advisor: Dr. [Milica Gašić](#).
- Investigated the performance of different distributed representations and deep neural networks on a big mental health dataset. (Paper accepted in LOUHI 2018)
  - Proposed a new VAE model for controllable response generation. Obtained higher BLUE scores than attention-based Seq2Seq and CopyNet.
- 10/2014 - 07/2016 **Speech Processing and Machine Intelligence Lab**, *Tsinghua University*, Beijing, China  
Advisor: Prof. [Zhijian Ou](#).
- Studied approximation methods for inference and learning in state-space models.
  - Proposed a new algorithm based on stochastic approximation and mixture sampling. Achieved better performance than Gibbs sampling, forward-backward, PMCMC.

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## Publications

- [1] Lina Maria 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 *Proceedings of the Ninth International Workshop on Health Text Mining and Information Analysis (LOUHI 2018)*, Brussels, Belgium.
- [2] **Yinpei Dai**, Zhijian Ou, Dawei Ren, and Pengfei Yu. [Tracking of Enriched Dialog States for Flexible Conversational Information Access](#). In *2018 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2018)*, Calgary, Canada.
- [3] **Yinpei Dai**, Yichi Zhang, Zhijian Ou, Yanmeng Wang, and Junlan Feng. [Elastic CRFs for Open-ontology Slot Filling](#). In *2019 IEEE International Conference on Acoustics, Speech and Signal Processing, (ICASSP 2019)*. **Currently Under Review**.

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## Teaching Experience

### Teaching assistant

- Fall 2016 30230783 *Probability and Stochastic Processes (2)*, THU.
- Spring 2017 30230742 *Probability and Stochastic Processes (1)*, THU.
- Fall 2017 30230672 *Fundamentals of computer programming*, THU.
- Spring 2018 80230652 *Theory and Applications of Probabilistic Graphical Models*, THU.

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## Invited Talk

- 10/2014 **IVIP Group**, Tsinghua University, Beijing.  
Gave a talk on advanced Markov Chain Monte Carlo algorithms.

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## Honors and Memberships

- 03/2018 - Present **IEEE student membership**.
- 03/2018 - Present **IEEE Signal Processing Society (SPS) student membership**.
- 12/2014 **Haodushu Scholarship**, Tsinghua University, First-class national scholarship.
- 12/2013 **Samsung Scholarship**, Tsinghua University.

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## Skills

- Programming Python, C/C++, Java, Matlab, Shell, MySQL, HTML,  $\text{\LaTeX}$ , etc.
- Python Package Tensorflow, Pytorch, Django, Scrapy, etc.