

# Juncheng Wan

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## Education

### Shanghai Jiao Tong University

- M.Eng in Computer Science
- Supervised by *Prof. Weinan Zhang* and *Prof. Yong Yu*

Shanghai, China

2020.9 - 2023.3

### Shanghai Jiao Tong University

- B.E. in Computer Science (minor in Mathematics)
- Zhiyuan Honors Program of Engineering
- GPA: 3.84/4.3    Rank: 6<sup>th</sup>/104 [*proof*]

Shanghai, China

2016.9 - 2020.7

## Experiences

### TikTok, ByteDance

Machine Learning Engineer, Video Recommendation Algorithm

- Work as a full-time employee for the recommender algorithms of 10 billions of e-commerce videos in TikTok. Design algorithms for recall and fine-rank stages, including rule-based methods and neural networks models.

Shanghai, China

2023.4 - Now

### Taobao, Alibaba

Research Intern, Product Recommendation Algorithm

- Design a graph for labels in loss for negative feedback prediction of 10 billions of products on Taobao. The hit rate of negative feedback increased by 1%. Implement a code base for Multi-interest Contextualized Feedback Network.

Hangzhou, China

2022.6 - 2022.10

### AI-Lab, ByteDance

Research Intern, Machine Unlearning, advisor *Prof. Dell Zhang*

- Explore 2nd-order optimization algorithms, including Newton Conjugate Gradient, Gauss Newton, Generalized Lanczos Trust-Region Newton, Ada Hessian, Hessian Free Newton, and Ad Hoc Newton, for machine unlearning.

Shanghai, China

2021.11 - 2022.5

### Microsoft Research Asia, Microsoft

Research Intern, Machine Translation, advisors *Shuming Ma* and *Dongdong Zhang*

- Propose a noise-filtering approach from the knowledge base and extracts fragments for translation assistance.
- Propose a phrase-level gradient-based adversarial example method to enhance the robustness of translation.

Beijing, China

2019.7 - 2020.1

### School of Mathematical Sciences, SJTU

Research Assistant, Graph Theory, advisor *Prof. Yaokun Wu*

- In 2019, Cox and Sanaei made two conjectures: 1) For any given  $r \in (0, 1)$ , there is a series of graphs such that the ratio of the damage number and the capture time approaches  $r$ . 2) For Paley graph  $\mathcal{P}_n$ , the damage number equals  $\frac{n-1}{2}$  when  $n \geq 13$ . We proved Conjecture 1 fully. We also proved Conjecture 2 in the case that  $n = 13$ . [*pdf*]

Shanghai, China

2019.12 - 2020.7

### School of Computer Science and Engineering, APEX Lab, SJTU

Leader of NLP Group, Text Generation, advisors *Prof. Weinan Zhang* and *Prof. Yong Yu*

- Generate description of graph-structured knowledge base by optimizing the inverse Kullback-Leibler divergence.
- Recognize nested named entity with self-designed entity-entity graph and span-entity graph.

Shanghai, China

2018.10 - 2023.3

## Publications

### Nested Named Entity Recognition with Span-level Graphs. [*pdf*][*code*]

- Juncheng Wan, Dongyu Ru, Weinan Zhang, Yong Yu.
- Annual Meeting of the Association for Computational Linguistics (ACL 2022).

### Phrase-level Adversarial Example Generation for Neural Machine Translation. [*pdf*][*code*]

- Juncheng Wan<sup>\*1</sup>, Jian Yang\*, Shuming Ma, Dongdong Zhang, Weinan Zhang, Yong Yu, Zhoujun Li.
- International Conference on Computational Linguistics (COLING 2022), **Oral**.

### Learning to Select Relevant Knowledge for Neural Machine Translation. [*pdf*][*code*]

- Jian Yang\*, Juncheng Wan\*, Shuming Ma, Haoyang Huang, Dongdong Zhang, Yong Yu, Zhoujun Li, Furu Wei.
- International Conference on Natural Language Processing and Chinese Computing (NLPCC 2021).

### Triple-to-Text: Converting RDF Triples into High-Quality Natural Languages via Optimizing an Inverse KL Divergence. [*pdf*][*code*]

- Yaoming Zhu, Juncheng Wan, Zhiming Zhou, Liheng Chen, Lin Qiu, Weinan Zhang, Xin Jiang, Yong Yu.
- International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR 2019).

<sup>1</sup>co-first author

### Smart-Start Decoding for Neural Machine Translation. [\[pdf\]](#)[\[code\]](#)

- Jian Yang, Shuming Ma, Dongdong Zhang, **Juncheng Wan**, Zhoujun Li, Ming Zhou.
- North American Chapter of the Association for Computational Linguistics (NAACL 2021).

### Forgetting Fast in Recommender Systems. [\[pdf\]](#)

- Wenyan Liu\*, **Juncheng Wan\***, Xiaoling Wang, Weinan Zhang, Dell Zhang, Hang Li.
- ArXiv 2022.

## Honors and Awards

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### Honors

- Outstanding Graduate of SJTU 2023
- Zhiyuan Honor Degree of Bachelor of Engineering (Top 1%) 2020

### Scholarships

- National Scholarship (Top 1%) 2022
- First-class Academic Excellence Scholarship 2021
- Zhiyuan College Honored Scholarship (Top 5%) 2017, 2018, 2019
- Second-class Academic Excellence Scholarship 2017, 2018

## Teachings

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Teaching Assistant: CS214 Algorithm and Complexity 2021, 2022

## Skills

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### Mathematics

- **Analysis:** Complex Analysis, Functional Analysis, Measure Theory, Probability Theory, Stochastic Process
- **Algebra:** Representation Theory[\[pdf\]](#), Commutative Algebra<sup>1</sup>, Category Theory and Homology Algebra
- **Geometry:** Smooth Manifold<sup>†</sup>[\[pdf\]](#), Lie Group and Lie Algebra[\[pdf\]](#), Algebraic Topology, Algebraic Geometry[\[pdf\]](#)
- **Combinatorics:** Algorithm and Complexity[\[pdf\]](#), Combinatorics, Graph Theory, Morden Graph Theory[\[pdf\]](#)

**Programming:** C/C++, HSQL, Python, L<sup>A</sup>T<sub>E</sub>X, Matlab, Verilog.

**Language:** TOEFL 101.

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<sup>1</sup>Auditioned course