JIACHENG LI

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EDUCATION

University of California, San Diego — Sep 2020 - Jun 2023 (Expected)
Doctor of Philosophy. Advisors: Julian McAuley and Jingbo Shang.
Department of Computer Science and Engineering.

University of California, San Diego — Sep 2018 - June 2020
Master of Science.
Department of Computer Science and Engineering.

Nanjing University of Posts and Telecommunications — Sep 2014 - June 2018
Bachelor of Engineering.
College of Computer Science.

RESEARCH AREA

Natural language processing, Recommender systems

WORK EXPERIENCE

Applied Scientist Intern — Sep 2022 - Dec 2022
Amazon
Product graph team. Project: Neural-symbolic reasoning on product knowledge graph.

Applied Scientist Intern — June 2022 - Sep 2022
Amazon
Product semantics team. Project: Attribute-enhanced personalized product highlights generation.

Graduate Student Researcher-Machine Learning, NLP — Sep 2019 - Jun 2022
IBM Research, UC San Diego
Project: Information Extraction for Microbiome Knowledge Base Construction.

Applied Scientist Intern — June 2021 - Sep 2021
Amazon
Personalization team. Supervisor: Tong Zhao

Machine Learning for Natural Language Processing Intern — June 2020 - Sep 2020
Bosch USA.
Project: Weakly Supervised Named Entity Recognition by Rules.

PUBLICATIONS

Ranak Roy Chowdhury, **Jiacheng Li**, Xiyuan Zhang, Dezhi Hong, Rajesh Gupta, Jingbo Shang. PrimeNet: Pre-training for Irregular Multivariate Time Series. *AAAI Conference on Artificial Intelligence (AAAI) 2023.*

William Hogan, **Jiacheng Li**, Jingbo Shang. Fine-grained Contrastive Learning for Relation Extraction. *The 2022 Conference on Empirical Methods in Natural Language Processing (EMNLP) 2022.*

Jiacheng Li, Yannis Katsis, Tyler Baldwin, Ho-Cheol Kim, Yoshiki Vazquezbaeza, Andrew Bartko, Julian McAuley and Chun-Nan Hsu. SPOT: Knowledge-Enhanced Language Representations for Information Extraction. *31st ACM International Conference on Information and Knowledge Management (CIKM) 2022.*

Jiacheng Li, Tong Zhao, Jin Li, Jim Chan, Christos Faloutsos, George Karypis, Soo-Min Pantel and Julian McAuley. Coarse-to-Fine Sparse Sequential Recommendation. *SIGIR 2022.*

Jiacheng Li, Jingbo Shang and Julian McAuley. UCTopic: Unsupervised Contrastive Learning for Phrase Representations and Topic Mining. *Annual Meeting of the Association for Computational Linguistics (ACL) 2022*.

Jiacheng Li, Haibo Ding, Jingbo Shang, Julian McAuley and Zhe Feng. Weakly Supervised Named Entity Tagging with Learnable Logical Rules. *Annual Meeting of the Association for Computational Linguistics (ACL) 2021*.

Yang Jiao*, **Jiacheng Li***, Jiaman Wu, Dezhi Hong, Rajesh Gupta and Jingbo Shang. SeNsER: Learning Cross-Building Sensor Metadata Tagger. *(Findings of EMNLP) 2020*.

Jiacheng Li, Yujie Wang, Julian McAuley. Time Interval Aware Self-Attention for Sequential Recommendation. *International Conference on Web Search and Data Mining (WSDM) 2020*.

Jianmo Ni, **Jiacheng Li**, Julian McAuley. Justifying Recommendations using Distantly-Labeled Reviews and Fine-grained Aspect. *Empirical Methods in Natural Language Processing (EMNLP) 2019*.

An Yan, Zhankui He, **Jiacheng Li** and Julian McAuley. Personalized Showcases: Generating Multi-Modal Explanations for Recommendations. *Under Review*.

An Yan, **Jiacheng Li**, Wanrong Zhu, Yujie Lu, William Yang Wang, Julian McAuley. CLIP also Understands Text: Prompting CLIP for Phrase Understanding. *Under Review*.

Jiacheng Li, Zhankui He, Jingbo Shang, Julian McAuley. UCEpic: Unifying Aspect Planning and Lexical Constraints for Explainable Recommendation. *Under Review*.

PROJECTS

Weakly Supervised Named Entity Recognition with both Symbolic and Neural Representations
Research Project. **Pytorch**. **Snorkel**

- An iterative framework to recognize entities starting from a few seeding entities.
- Generate and select rules from raw text and predicted entities automatically. Apply rules on raw text to expand more entities.
- An independent entity instances selector to reduce the noises in the expanded entities.
- Span-based named entity recognition.

Time Interval Aware Self-Attention for Sequential Recommendation
Research Project. **Tensorflow**.

- Designed a novel time interval aware self-attention (TiSA) mechanism to learn the weight of different items, absolute position and time intervals to predict the following items.
- We proposed to view users interactions history as a sequence with different time intervals, and model different time intervals as relations between any two interactions.

Justifying Recommendations using Distantly-Labeled Reviews and Fined-Grained Aspects
Research Project. **Pytorch**.

- Defined each segment as an Elementary Discourse Unit (EDU) which corresponds to a sequence of clauses.
- Annotate data and trained GRU-based (Gated Recurrent Unit) and BERT-based text classifier to identify justifications from user reviews and compared the results.
- Reference-based Seq2Seq Model: A natural language generation model based on the seq2seq model. We apply two-layer bidirectional GRU as the encoder and decoder. Use attention mechanism to incorporate aspect information to improve controlment of generation.
- Aspect Conditional Masked Language Model: The masked language model in the pretrained BERT model as our sequence decoder and add attention over the aspect encoders output.