Zhichao Xu

Updated October 22, 2021

zhichao.xu@utah.edu   **Homepage**   **Google Scholar**   **Github**

Research Interests Recommender System, Product Search, Explainable ML, Fairness, Conversation

EDUCATION

- **University of Utah** — Salt Lake City, UT
  Ph.D. in Computer Science, GPA: 3.97 — *Sep. 2020 – Est. 2024*

- **Rutgers, The State University of New Jersey** — New Brunswick, NJ
  MS in Computer Science, GPA: 3.70 — *Sep. 2018 – May. 2020*

- **Shanghai University of Finance & Economics** — Shanghai, China
  BS in Applied Statistics — *Sep. 2014 – Jul. 2018*
  BE in Computer Science & Technology (minor) — *Sep. 2015 – Jul. 2018*

SELECTED PUBLICATIONS

- **Understanding the Effectiveness of Reviews in Top-N Recommendation**,
  Zhichao Xu, Hansi Zeng, Qingyao Ai; in proceedings of 7th International Conference on the Theory of Information Retrieval (**ICTIR**), 2021

- **A Zero Attentative Relevance Matching Network for Review Modeling in Recommendation System**,
  Hansi Zeng, **Zhichao Xu**, Qingyao Ai; in proceedings of 43rd European Conference on Information Retrieval (**ECIR 2021**)

- **E-commerce Recommendation Based on Weighted Expected Utility Theory**,
  Zhichao Xu, Yi Han, Yongfeng Zhang, Qingyao Ai; in 29th ACM International Conference on Information and Knowledge Management (**CIKM 2020**)

- **Speech-Based Activity Recognition for Trauma Resuscitation**,
  Jalal Abdulbaqi, Yue Gu, **Zhichao Xu**, Chenyang Gao, Ivan Marsic and Randall S. Burd; in IEEE International Conference on Healthcare Informatics (**ICHI 2020**)

RESEARCH PROJECTS

- **Dialogue Policy in Conversational Retrieval**: In multi-turn conversational search/retrieval, dialogue policy can be important for the final retrieval performance and user satisfaction. Our work aims to improve existing reinforcement-learning-based conversational agent by designing more comprehensive dialogue policy to improve the users' satisfaction as well as retrieval performance (ongoing)

- **Faithfulness in Model-agnostic Explainable Recommendation**: We propose a framework for model-agnostic explainable recommendation and corresponding training strategy. Our framework consists of two parts: a black-box style recommendation model and a white-box style explanation model. By our knowledge-distillation-style training strategy, the explanation model can faithfully explain the decisions by the black-box model. We also show our framework can potentially improve the scrutability of the black-box recommendation model (in submission)

- **Comparison of Review-based Recommendation Model Structures in Top-N Recommendation**:
  Review-based recommendation models extract information from product reviews given by the user to better profile user preferences and product features; this work compares several sota review-based recommendation models in the task of top-N recommendation, discuss the performances and propose meaningful improvement to utilize heterogeneous content information for explainable recommendation (publication at **ICTIR 21** & **ECIR 21**.)

- **Machine Learning for Economic Analysis (Pytorch)**: In E-commerce, consumers' behaviors are heavily affected by economical motives. I adopted several principles from economics to study consumers' behaviors and built the framework using PyTorch. The framework uses historical browsing/purchase records to construct highly personalized product recommendation lists, outperforms several state-of-the-art recommendation algorithms (publication at **CIKM 20**).

- **Speech-based Activity Recognition**: Activity recognition is important yet challenging task in health care domain. We design a VGG-based network for speech-based activity recognition in trauma resuscitation in emergency room. Our network is capable to achieve good performance despite the lack of training data and noisy context (publication at **ICHI 20**).

- **Zero-shot Entity Linking by Reading Entity Descriptions (Pytorch)**: Extend previous research on Entity Linking to zero-shot. Use pretrained word embeddings (RoBERTa etc.) and design the model structure, pretrain tasks to address the zero-shot EL without alias tables and frequency statistics

- **End-to-End Candidates Retrieval for Entity Linking (Pytorch)**: Parse the Wikidump files and segmented them into passages. Use BM25 for first-stage retrieval and two-tower structure for second-stage reranking. Candidates pool includes all WikiPedia entries

Industrial Experience

- **SAP Lab** Shanghai, China
  Data Analyst Intern (Python, Java, SQL, SAP Leonardo) *Dec. 2017 - Jun. 2018*
    - **Internal Analysis Tool**: Developed an Office Automation Tool, automatically acquiring data, plotting organization chart, generating data report & graphs for data visualization
    - **Development & Testing**: Developed localized functions & APIs in SAP S4 & Leonardo; Wrote a Python data-stream parser to take handle data and did corresponding testing, docs and maintenance

- **Ipsos Market Research** Shanghai, China
  Frontend Development Engineer Intern (HTML, Django, Node.js, Postgre SQL) *Jun. 2017 - Dec. 2017*
    - **Frontend Development**: Implemented Web Crawler to collect data. Deployed report pages for several projects

Engineering Skills

Programming Lauguage:
Proficient: Python, Matlab, SQL, PhP
Fundamental: C, Javascript, Go
Tools: Pytorch, Tensorflow, Spark, MapReduce, Django, React, Node.js, LaTeX