PEI CHEN

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EDUCATION

Ph.D. Candidate in Computer Science   2019.8 - 2023.12 (expected)

· Research Areas & Interests: Natural Language Processing (NLP); Large Language Models (LLMs) Pretraining, (Parameter-efficient) Fine-tuning, Efficient Inference, and Prompting; Information Extraction including Named Entity Recognition, Event Extraction, and Knowledge Base Completion.

· Overall GPA: 4.0/4.0 till now.

Texas A&M University

MS in Finance   2016.9 – 2018.6

· Thesis: Does News Sentiment Predict the Stock Market? An Example on Chinese Growth Market;

· Received 2017 National Scholarship for Graduate Student;

· Overall GPA: 3.9/5.0, ranking 1/178.

Southwestern University of Finance and Economics

B.Engr. in Simulation Engineering   2010.9 – 2014.6

· Thesis: Analyze and reconstruct the multi-resolution modeling technology of a simulation system written by millions of lines of C++ code;

· Overall GPA 88.61/100, ranking 1/45.

National University of Defense Technology

EXPERIENCE

Open Source AI Team, AWS AI   2023.5 – 2023.8

Applied Scientist (Intern)   *Santa Clara, CA*

· Doing research on designing cutting-edge multi-agent prompting methods for LLMs;

. Proposed using collaborative multi-agent prompting methods for LLMs, achieving new SOTA performance for complex science problems on both zero-shot settings and few-shot settings;

. Helping deploy LLMs in AWS using efficient inference and parameter-efficient fine-tuning techniques.

Bedrock Team (Amazon Titan Model), AWS AI   2022.6 – 2023.1

Applied Scientist (Intern)   *Santa Clara, CA*

· Proposed a novel tabular language model that models tables as hypergraphs to capture the table structures, achieving new SOTA tabular data representation learning performance (accepted to **NeurIPS** 2023 as a **spotlight**);

· Scale the preprocessing of 27 million tabular data for pretraining using parallel multiprocessing;

· Successfully pretrained the proposed model with the large-scale tabular data on AWS EKS clusters with multiple machines and GPUs.

Tencent AI Lab   2021.6 – 2021.8

NLP Researcher (Intern)   *Seattle, WA*

Proposed a comprehensive benchmark for zero-shot knowledge base completion (KBC) tasks, covering state-of-the-art KBC methods and broad knowledge source data.

Department of Computer Science & Engineering, Texas A&M University   2019.9 – 2023.5

Research Assistant and Teaching Assistant   *College Station, TX*

Research: Improved domain-specific named entity recognition task by modeling non-sequential entity mention relations using Graph Neural Networks; Improved fine-grained opinion mining task; Built fine-grained named location recognition benchmark, etc.
Teaching: CSCE 636 Deep Learning; CSCE 313 Computer Systems

National Lab of Pattern Recognition, Chinese Academy of Sciences   2018.1 – 2019.8
Research Engineer   *Beijing, China*

Improved the event extraction and causality detection tasks from financial domain texts.

Innovation Lab of Global Exchange, State Street   2017.7- 2018.1
Data Analyst (Intern)   *Hangzhou, China*

Working on data cleaning, analysis, visualization and database construction for innovative financial applications.

PUBLICATIONS

Pei Chen, Soumajyoti Sarkar, Leonard Lausen, Balasubramaniam Srinivasan, Sheng Zha, Ruihong Huang, and George Karypis. "HYTREL: Hypergraph-enhanced Tabular Data Representation Learning.", NeurIPS 2023 (**spotlight**).

Pei Chen, Wenlin Yao, Hongming Zhang, Xiaoman Pan, Dian Yu, Dong Yu, and Jianshu Chen. "ZeroKBC: A Comprehensive Benchmark for Zero-Shot Knowledge Base Completion." ICDM-2022, KG workshop.

Pei Chen, Haotian Xu, Cheng Zhang, and Ruihong Huang. "Crossroads, Buildings and Neighborhoods: a Dataset for Fine-grained Location Recognition". NAACL-2022, long paper, acceptance rate: 21.96%.

Pei Chen, Haibo Ding, Jun Araki, and Ruihong Huang. "Explicitly Capturing Relations between Entity Mentions via Graph Neural Networks for Domain-specific Named Entity Recognition." ACL-2021, short paper, acceptance rate: 21.2%.

Pei Chen, Kang Liu, Yubo Chen, Taifeng Wang, and Jun Zhao. "Probing into the Root: A Dataset for Reason Extraction of Structural Events from Financial Documents." EACL-2021, short paper, acceptance rate: 24.7%.

Pei Chen, Hang Yang, Kang Liu, Ruihong Huang, Yubo Chen, Taifeng Wang, and Jun Zhao. "Reconstructing Event Regions for Event Extraction via Graph Attention Networks." AACL-2020, long paper, acceptance rate: 28.3%.

SKILLS

Competent: Python, PyTorch, PyTorch Lightning, Git, Docker

Familiar: C/C++, TensorFlow, Keras, SQL

Experienced: Parallel pretraining and training with multiple GPUs and machines.

PROFESSIONAL SERVICE

2023: Program Committee/Reviewer for ACL, EMNLP

2022: Program Committee/Reviewer for EMNLP, ACL Rolling Review, NLPCC

2021: Program Committee/Reviewer for EMNLP, ACL Rolling Review, NLPCC