KAILI HUANG

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EDUCATION

Stanford University Stanford, CA
Master of Science in Computer Science, GPA: 4.0/4.0 Sep. 2021 - Jun. 2023
Tsinghua University Beijing, CHINA
Bachelor of Engineering in Industrial Engineering, CS GPA: 3.8/4.0 Aug. 2016 - Jul. 2020

EXPERIENCE

Microsoft Bellevue, WA
Applied Scientist Intern Jun. 2022 – Present

- Extended Transformer models' structured pruning methods into more general multi-modality scenarios for the first time. Reduced the model size significantly (>30%) with a slight accuracy drop (~1.7%) and obtained insight into the model redundancy of different modalities.
- Implemented pruning-related methods and APIs for the CLIP (Contrastive Language-Image Pre-training) model and its components (e.g., text transformer, vision transformer, attention heads, etc.).
- Constructed a sparse training pipeline by decomposing the Block Movement Pruning process into step-by-step procedures and integrating them with the model training process.
- Experimented with different pruning strategies and configurations on the CLIP model in the multi-media ad classification task. Identified gradient explosion as the root cause of training instability and resolved it.

ByteDance (TikTok) Beijing, CHINA
Machine Learning Engineer Jul. 2020 - Aug. 2021

Fake News Detection: Devised a workflow from scratch to tackle the fake news problem. Discovered 100 fake news articles per day on average. Achieved 50% correctness as a fake news detection pipeline.

- Formulated data annotation policies, designed data quality indicators and monitored the human labeling process. Created 2 million clean, uniformly formatted, high-quality labeled data for downstream tasks.
- Built BERT-based classification models to detect pieces of news that were worthy of fact-checking; achieved 0.60 F1 scores tested on highly imbalanced and heterogeneous online data.
- Developed natural language inference (NLI) models to extrapolate the truthfulness of news based on authoritative media publications, devised data augmentation strategies, and achieved 0.72 macro-F1 scores.
- Integrated symbolic learning to enhance NLI's numerical reasoning, increasing F1 scores by 15%.
- Created automatic pipelines of periodically taking increasing human-annotated data, updating the models, and analyzing the predictions. Built RPC services to deploy the models into the online censorship systems.

Bot-Written Articles Detection: Synthesized articles with GPT models and built BERT-based models to identify AI-generated articles, achieving an F1 score of 0.98.

Tsinghua Conversational AI Lab Beijing, CHINA
Research Assistant | Adviser: Minlie Huang Jan. 2019 - Jun. 2020

- Built the first large-scale Chinese cross-domain Wizard-of-Oz dataset, and analyzed it on natural language generation (NLG) tasks by building a series of benchmark models. Published on TACL. [Paper] [Code]
- Constructed a large-scale cleaned Chinese conversation corpus (LCCC), which serves as a benchmark for the open-domain conversation generation. Presented a series of fine-tuned GPT models for Chinese dialogues. Received NLPCC2020 Best Student Paper Award. [Paper] [Code]

SELECTED PUBLICATIONS

- Qi Zhu, **Kaili Huang**, Zheng Zhang, Xiaoyan Zhu, and Minlie Huang. CrossWOZ: A Large-Scale Chinese Cross-Domain Task-Oriented Dialogue Dataset. **TACL** [Paper] [Code]
- Hao Zhou, Chujie Zheng, **Kaili Huang**, Minlie Huang, and Xiaoyan Zhu. KdConv: A Chinese Multi-domain Dialogue Dataset Towards Multi-turn Knowledge-driven Conversation. **ACL2020** [Paper] [Code]

SKILLS

- Programming: Python, C/C++, Java, Scala, SQL, R, Lua, Bash, JavaScript, HTML, CSS
- Frameworks & Tools: PyTorch, TensorFlow, Hadoop, Hive, Spark, GCP, Azure, MongoDB, Django, Git