Zeming Chen

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Objective

I plan to attend graduate school after graduation and pursue a Ph.D. degree in the field of natural language understanding and reasoning. My research interests are natural language processing and understanding, particularly in building models capable of human-level inference and understanding of language. My research primarily focuses on natural logic & monotonicity, neural language models, computational semantics, and natural language inference. I'm currently working on probing implicit knowledge from language models for building better semantic representations from language, and on developing a novel learning framework that train models to learn human-level reasoning process through meta reinforcement learning.

Education

Rose Hulman Institute of Technology
Bachelor of Science
Computer Science, Mathematics
GPA: 3.83, 3.50 Graduate Date: May 2022
Relevant Class: Seminar on Inference, Natural Language Processing, and Artificial Intelligence

PUBLICATION

- **NeuralLog: Natural Language Inference with Joint Neural and Logical Reasoning**
  Zeming Chen, *Qiyue Gao*, *Lawrence S. Moss*
  Proceedings of the 10th Joint Conference on Lexical and Computational Semantics (*SEM2021), Association of Computational Linguistics
  https://arxiv.org/abs/2105.14167
- **Monotonicity Marking from Universal Dependency Trees**
  Zeming Chen, *Qiyue Gao*
  Proceedings of the 14th International Conference on Computational Semantics (IWCS2021), Association of Computational Linguistics
  https://arxiv.org/abs/2104.08659
- **Attentive Tree Network for Monotonicity Reasoning**
  Zeming Chen
  Proceedings of the 1sr workshop on Natural Logic meets Machine Learning (NALOMA'20), Association of Computational Linguistics.
  https://arxiv.org/abs/2101.00540

EXPERIENCE

- **Indiana University Bloomington,** Bloomington, Indiana
  Research Experience Feb 2021 - April 2020
  - Developed NeuralLog, an inference engine for natural language inference by joint neural and logical reasoning and dependency graph alignment
- **Indiana University Bloomington,** Bloomington, Indiana
  Research Experience Sep 2020 - Dec 2020
  - Developed Udeo2Mono, an automatic polarity marking system using Universal Dependency for monotonicity reasoning
- **Sunshine Import Export Inc, Hangzhou,** Zhejiang, China
  ERP Software Developer June 2019 - Sep 2019
  - Developed and deployed an enterprise resources planning system.
  - Java web application built with Spring Boot and MySQL database.

SKILLS

- **Programming:** Proficient in Python, JavaScript, Java, C/C++, scheme,
- **Deep Learning:** implemented and applied convolution neural networks (ResNet, EfficientNet, FPN),

recurrent neural network(LSTM, GRU), graph neural network (Tree-LSTM, graph-Conv). Had experience with Pytorch, TensorFlow, and Keras. Finetuned roBERTa and BERT.
- **Machine Learning:** implemented and applied SVM, logistic regression, principal component analysis, naive Bayesian, decision tree, and random forest.

PROJECTS

- **Automatic Social Distance Monitoring (Summer 2020)**
  Real-time pedestrian detection and social distance analyzing. A C++ project built with OpenCV. YOLOv3 is used to detect and localize pedestrians. Euclidean distance is used to calculate the distance between each person.
- **Knowledge Graph Enhanced Dialog System (Spring 2019)**
  Research Project on improving dialog system performance by incorporating knowledge graphs through a graph attention mechanism.

Certificate

- **C++ Nanodegree (Summer 2020)**
  From Udacity
- **Deep Learning Specialization Certificate (winter 2019)**
  From Deeplearning.ai
- **Quantum Machine Learning (spring 2019)**
  From EPFLx
- **Computational Neuroscience: Neuronal Dynamic of Cognition**
  From EPFLx