Kaixin Zhang
Addr: Peking University, No. 5 Yiheyuan Street, Haidian District, Beijing, China, 100080
+(86) 19801203004 | Email: PKUKaixinZhang@gmail.com

EDUCATION

AI Turing Class, EECS College, Peking University ***Beijing, China***
Bachelor of Engneering in Artificial Intelligence ***Sept. 2018 – Present***

- **Overall GPA**: 3.67/4.00 **Major GPA**: 3.72/4.00
- **Honor**: Newbee Scholarship of Peking University *Dec. 2018*
  School-level Scholarship of Peking University *Oct. 2019*

Major courses

- Core Courses:
  Machine Learning 88/100,
  Operating System 86/100,
  Discrete Mathematics and Structures 94/100
- Frontier Computing Courses:
  Natural language and Data science 100/100,
  The Brain and Cognitive Science 91/100,
  Study and Practice on Topics of Frontier Computing 90/100

RESEARCH EXPERIENCE

Development of Commonsense-based Question Generation Models *May. 2020-Nov. 2020, Beijing*
Research Assistant | Supervisor: Prof. Yunfang Wu, Institute of Computational Linguistics of PKU

- Designed a Seq-to-seq Question Generation model and developed static graph attention mechansim that extracts extern knowledge from Knowledge Graph to assist feature capture of the encoder
- Transferred an existing QG model from SQuAD (a classic NLG corpus) to RACE (the latest NLG corpus)
- Participated in another project of Commonsense-based Multitask Learning QG project, provided assistance about baseline implementation and data completion in ablation experiment, which was accepted by ACL2020

Study of Mainstream Methods for Continual Learning *Mar. 2020-May. 2020, Beijing*
Member | Supervisor: Prof. Zhihong Deng, Department of Machine Intelligence of PKU

- Participated in seminars with the research group, and delivered speech about future of replay-based Contiual Learning, especially about knowledge storage and transference
- Finished a detailed paper review covering the origin and development of three classes methods of Lifelong Learning: regularization-based, dynamic-structure-based and replay-based neural network training

Modification of Semi and Self-supervised Text Classification Methods *Jan. 2020-Mar. 2020, Beijing*
Member | Supervisor: Assistant Prof. Rui Yan, Wangxuan Institute of Computer Technology of PKU

- Investigated all the published semi-supervised and unsupervised Text Classification models from 2018 to 2020, and discussed the working mechanism of some self-supervised networks and possibility of optimization
- Verified the validation of one of the noisy-label adversarial TC models through model reproduction using PyTorch
- Designed an feasible method to integrate Paragraph-level Features to improve TC.

PROJECT DEVELOPMENT

Commonsense Question Generation Model using Knowledge Graph *July. 2020-Oct. 2020, Beijing*
Leader | Supervisor: Prof. Yunfang Wu, Institute of Computational Linguistics of PKU

- Reached 17.43 for BLEU-4, on standard SQuAD test set, which is distinguished among the non-pretrained methods
- Designed a static graph attention mechanism to integrate extern information from Knowledge Graph, which can be concatenated onto word embeddings as linguistic feature to assist decoder to generate more "rational" tokens
- Adopted classic mechanisms of seq-to-seq QG including Maxout Pointer Copy Mechansim and Gated Self Attention
- For the next step, to implement some other attention structures to extract further commonsense information and will pay more attention to pre-train models

Fracture Detection Model using Faster-RCNN *Apr. 2020-June. 2020, Beijing*
Member | Supervisor: Prof. Liwei Wang, Center for Data Science of PKU

- Used Generalizaed-RCNN of Detectron2 to implemented Faster-RCNN for its scalability, training Backbone Network for feature extraction, Region Proposal Network for anchor detection and ROI pooling layer for length normalization
- After investigation and comparision, we took ResNet+FPN as backbone network instead of purely ResNet, which paid comprehensive attention to features in all levels
- Adopted transfer learning on ImageNet to get better performance, specifically, fixing parameters of downside layers of the backbone, and fine-tune the parameters of remains

SKILLS

Pytorch, C, C++, Python, Assembly, Tensorflow