Le Zhang

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EDUCATION BACKGROUND

2018-2022 **School of Information science and technology, Fudan University**

Major	Biomedical Engineering at Department of Electronic Engineering
Research Interests	Natural Language Generation, Information extraction, Multimodal machine learning
GPA	3.75/4.0 (Freshman 3.58, Sophomore 3.90, Junior 3.82)
Ranking	5/221

ACADEMIC EXPEREINCE

2021.7-present **Tree-Mixup: sequence classification augmentation** *(Remote internship with Gatech , advised by Dr. Diyi Yang)*

As mix-up data augmentation applied in CV field, we consider same method could also be used in NLP field, so we explore several ways exchanging word span between samples

- Randomly select span and mix up them between samples as baseline
- Parsing sentence in to constituency tree, then randomly select span based on the tree structure, I design several experiments and valid this method could strongly improve sequence classification performance on several datasets and tasks

2020.11-2021.7 **Chinese multimodal social event datasets construction & Multimodal social event extraction** *(advised by Dr. Zhongyu Wei at Fudan Univ)*

In an effort to build Chinese multimodal event datasets, we collect multimodal data from social platform and propose new task formulations as well as baselines for the task.

- Collect multimodal document (image or video & text) from official and commercial press on Chinese social platform WEIBO using crawler technology. Predefine categories and subtypes for social events e.g., {Military: [conflict, weapon operation, transportation]}.
- Apply information extraction method to find out candidate event trigger. Analysis the statical distribution of trigger words based on predefined event types and clean the datasets for high quality of text-image pairs based on CLIP
- Design a crowdsource labelling pipeline and HTML page for crowdsource selecting the candidate argument and role considering the trigger
- Propose two multimodal event tasks: 1) Visual Enhancement Event Extraction task which utilize visual information to enhance text event extraction and 2) Multimodal Event Extraction which construct an event graph containing relationships between sub-images and textual event.

2021.3-2021.4 **Natural-Object-Material Audio-Visual Generation** *(internship at QiZhi research institute, Directed by Dr. Hang Zhao)*

Expand the task formulation and datasets (Andrew Owens et al,2016) by adding textual description and construct a higher quality dataset as well as propose new tasks on newly collected datasets.

- Propose new task formulation as combining two modalities—Video and Text to generate corresponding Audio of the action depicted in the video
- Design a crowdsourcing pipeline & HTML page for Amazon Mechanical Turk
- Propose new task formulation as using audio sound to indicate image style transfer and a

framework based on CUT (Taesung Park et al, 2020).

2021.5-2021.7 **Long Text Generation** *(Remote internship with Gatech, advised by Dr. Diyi Yang)*

As large pretrained language models are not able to generate coherent and cohesive long text (hundreds of tokens), we propose to incorporate discourse representation of a document in generation process, which can inform the structure information to the generator and alleviate the problem of resistiveness and Semantic inconsistency.

- Explicitly generate flattened Rhetorical Structure Theory tree as intermediate sequence to assist generating long text.
- Implicitly using hierarchical VQ-VAE to model higher level representations of global document structure and local paragraph structure as two discrete latent code to assist generation

COURSE PROJECT

2020.9-2020.10 **Mask detection based on object detection** *(advised by Dr. Feng Xu at Fudan univ.)*

Trying to notice people wearing mask, I design a mask detector which can notice particular people (indicating clothes color & style, gender) who does not wear a mask

- Collected 10k+ of medical masks and label them using Lableme tool
- Built a framework containing an object detection model based on yolov5 to get sub-images of people not wearing masks and a classification model deciding the cloth and gender of passengers

2020.7-2020.8 **Traditional NLP tasks**

Independently completed projects including classic NLP tasks

- Machine Leaning/Deep learning (CNN, RNN) methods for text classification
- Named entity recognition using LSTM+CRF
- Language model based on Chinese lyrics creation

INTERSHIP

2020.3-2020.5 **Qizhi Research Institute Shanghai (research assistant)**

AWARDS & HONORS

2018-2019 Fudan University Outstanding Undergraduate Student Scholarship Second Prize

2019-2020 Fudan University Outstanding Undergraduate Student Scholarship First Prize (Huawei sponsored)

SKILLS

DL&ML: Familiar with state-of-the-art natural language processing, machine learning and statistics

Frameworks: Proficient with pytorch and Scikit-learn and Transformers

Math: Familiar with Probability Theory, Calculus and Linear Algebra

Programming: Familiar with python, C, C++

ACTIVITY & VOLUNTEER

Volunteer: Outstanding Volunteer Prize of Fudan University in 2019

Social activity: Co-founder of the Fudan Ukulele Society