

Mr. Jianyu Wang

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EDUCATION

Nanjing University of Posts and Telecommunications

Nanjing, Jiangsu

BE in Electronic and Information Engineering

Sep. 2016 – June 2020

- **Overall GPA:** 93.1/100 **Major GPA:** 96.6/100(highest, 14 major courses 98+) **Ranking:** 2/271

RESEARCH INTERESTS

Knowledge-driven Multimedia Applications | Multimodal ML | Intelligent Information Systems(IR)

PUBLICATION & PATENT

Jianyu Wang, Jianxin Chen, Yihao Cai. “A framework for multimodal sign language recognition under small sample based on key-frame sampling,” in 2020 International Workshop on Pattern Recognition, **Accepted**
Jianyu Wang. 2020. A Multimodal Sign Language Recognition Method for Deep Learning under Small Sample Based on Key-frame Sampling. CN111666845A, filed May 26, 2020, and issued September 15, 2020.

Jianyu Wang, Bingkun Bao. “DualVGR: A Dual-Visual Graph Reasoning Unit for Multi-step Reasoning in Video Question Answering,” in IEEE Transactions on Multimedia 2020, **Submitted**

EXPERIENCE

Research Assistant in NLPR, MMC Group: VideoQA | *Mentor: Bingkun Bao*

June 2020 – Present

- Aimed to propose a multi-step reasoning unit suitable for VideoQA task;
- To model the fine-grained interactions between two modalities, proposed an Interaction unit, which consists of several fusion methods, such as Attention, Gate Mechanism and Bilinear Fusion;
- In order to model the contextual information in both appearance feature and motion feature, proposed a special Graph Network, which is suitable for this multi-view task;
- Proposed a explainable query punishment module to dynamic model the interactions, since not all clips are related to the question. Even the baseline has achieved SoTA results, almost 3% improvements in three benchmark datasets, including MSVD-QA, MSRVT-QA and SVQA;
- Submit a paper to TMM2020 as the first author, and the code in this work would be available soon.

Alibaba Cloud Tianchi Anonymous News Text Classification | *Solo Ranking: 4/2184* July 2020 – Sep. 2020

- EDA: Analyzed the average text length of each anonymous text, inferred the number corresponding to the exclamation mark, question mark, comma, period, etc;
- Pretrained the Word Vectors from scratch, including Word2Vec, GloVe, FastText. Due to limited hardware resources, just pretrained the Bert-small Models with Distributed Data Parallel on 4 1080Ti GPUs;
- Mastered Tricks: Adversarial Training, Adversarial Validation, Text Matching via FastText Embedding, Focal Loss, EasyDA, Pseudo-Labeling, TTA, SpatialDropout, Multi-sample Dropout, etc;
- Tested several Models with cross-validation, such as TFIDF+LightGBM, TextBiGRU, TextCNN, Bert-variations, DPCNN, etc. Ensembled these models via Blending/OOF Stacking to Achieve 4/2184 in the leaderboard;
- Made my project open-source on Github, 42 stars with huggingface/bert tutorials. Shared my technical report via Zhihu, Tianchi and some Wechat Official Accounts, like NewBeeNLP.

National Undergraduate Training Program | *Multimodal Chinese SLR*

April 2018 – Oct. 2019

- Took the missing semester of cs course@MIT, converted the ‘bin’ data into normal type. Color-mapped the depth information via JET color matrix;
- Invented a novel hand segmentation algorithm, which utilized skeleton and depth information to remove the disturbance of human face pixels. Adopted Brox Algorithm to generate the optical flow videos;
- Proposed two novel sampling strategies, optical flow-based weighted key-frame selection and skeleton-based weighted key-frame unification in consideration of the movement trend of sign language words;
- Tested several models performance, including C3D, C3D+ConvLSTM+SPP, R3D and R(2+1)D. Proposed a cross-sampling finetuning strategy to improve the results. Compared several Multimodal Fusion Methods like early fusion and late fusion to get the final results. 4.51% improvements;
- Accepted a paper in 2020 IWPR as the first author. Achieved Outstanding Undergraduate’s Thesis Award.

HONORS & AWARDS

Academic Scholarship: 1st Scholarship; Triple-A Student; Excellence Award in Single Subjects; Outstanding Undergraduate's Thesis Award

Scholarships from Corporations: Scholarship from YOFC and Hengtong Group

Awards from Competitions: 1st prize in 51 MCM; 1st prize in College Students Higher Mathematics Olympiads of Jiangsu Province; Honorable Mention in MCM; 2nd prize in NECCS; Rank 4/2184 in Alibaba Cloud Tianchi Anonymous News Text Classification

TECHNICAL SKILLS

Languages: Python, C/C++, SQL, JavaScript, HTML/CSS, Scala, Matlab

Developer Tools: Git, Docker, Shell commands, Emacs, Vim, Markdown, gdb, L^AT_EX

Libraries: pandas, numPy, matplotlib, scipy, pytorch, tensorflow 2.x, huggingface/transformers, sklearn, json, yaml, keras, h5py, seaborn