YUE WANG

Room 101A, Ho Sin-Hang Engineering Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

✆ (+852) 56014861 ✉ yuewang@cse.cuhk.edu.hk ⓘ yuewang-cuhk.github.io/Linkedin

BRIEF INTRODUCTION

Yue Wang is a fourth-year Ph.D. candidate at The Chinese University of Hong Kong, under the supervision of Prof. Michael R. Lyu and Prof. Irwin King. Before that, he obtained a B.Sci. degree from Sun Yat-sen University with an outstanding student honor. His major research interest focuses on understanding unstructured social media posts in either the pure-text or multimodal setting via predicting their keyphrases. Besides, he is also interested in vision and language understanding that lies in the intersection of NLP and CV.

RESEARCH INTERESTS

- **In general**: Deep Learning, Machine Learning, Natural Language Processing, Computer Vision
- **Language Understanding in Social Media**: Hashtag Annotation, Keyphrase Generation
- **Vision and Language Understanding**: Multimodal Keyphrase Generation, Visual Dialog

EDUCATION

The Chinese University of Hong Kong (CUHK) *Shatin, N.T., Hong Kong*
Ph.D., Computer Science and Engineering *Aug. 2016 to Present*
- Advisor: Prof. Michael R. Lyu & Prof. Irwin King

Sun Yat-sen University (SYSU) *Guangzhou, China*
B.Sci., Computer Science and Technology *Sept. 2012 to Jun. 2016*
- GPA: 3.94/4.00 (Top 3), **Outstanding Graduate Honor**

PUBLICATIONS

[1] **Yue Wang**, Shafiq Joty, Michael R. Lyu, Irwin King, Caiming Xiong, Steven C.H. Hoi. *VD-BERT: A Unified Vision and Dialog Transformer with BERT.* (arXiv). Media Coverage

[2] **Yue Wang**, Jing Li, Hou Pong Chan, Irwin King, Michael R. Lyu, Shuming Shi. *Topic-Aware Neural Keyphrase Generation for Social Media Language.* (ACL 2019), Florence, Italy, 2019. (**79 stars** of the Github project) ***AR: 25.7%, h5-index: 106***

[3] **Yue Wang**, Jing Li, Irwin King, Michael R. Lyu, Shuming Shi. *Microblog Hashtag Generation via Encoding Conversation Contexts.* (NAACL-HLT 2019, Oral), Minneapolis, USA, 2019. ***AR: 22.6%, h5-index: 61***

[4] Jian Li, **Yue Wang**, Michael R. Lyu, Irwin King. *Code Completion with Neural Attention and Pointer Networks.* (IJCAI 2018, Oral), Stockholm, Sweden, 2018. ***AR: 20.5%, h5-index: 67***

[5] **Yue Wang**, Zibin Zheng, Michael R. Lyu *Entropy-based Service Selection with Uncertain QoS for Mobile Cloud Computing.* (IEEE CIC 2015), Hangzhou, China, 2015.

WORK EXPERIENCE

Amazon Web Services AI *California, USA*
Applied Scientist Intern on a Machine Translation project *Jul. to Oct. 2020*

Salesforce Research *Singapore*
Research Intern on visual dialog using vision-language pretraining *Sept. 2019 to Jan. 2020*
- Mentor: Prof. Steven Hoi & Prof. Shafiq Rayhan Joty
- Our VD-BERT model ranks **No. 1** in the VisDial leaderboard. A **US patent** is being filed for it.

Tencent AI Lab *Shenzhen, China*
Research Intern on keyphrase generation for social media language *May to Aug. 2018*
- Mentor: Prof. Jing Li
- **Two first-authored long papers** published in NAACL2019 and ACL2019

Microsoft Research Asia *Beijing, China*
Research Intern on a distributed Latent Dirichlet Allocation system, *System Group* *Jul. to Oct. 2015*
- Mentor: Cheng Chen

PROJECT EXPERIENCE

Huawei-CUHK Project *Shenzhen&HK, China*
Project Collaboration with our Lab on fiber optic signal continuity prediction *Sept. 2016 to Nov. 2017*
- Take charge of one sub-project, including survey, model design&experiments, and final project defense.
- Our solution can meet the requirements by Huawei in terms of prediction accuracy and efficiency.

Brigham Young University *Utah, USA*
Visiting Student for a final year project on designing a compiler for Labview *Jan. to Apr. 2016*
- Advisor: Prof. Brent Nelson
- This project can be found here and is converted to my undergraduate thesis with A-Class grade.

SELECTED AWARDS & HONORS

National Scholarship awarded by Ministry of Education, China (Top 1)	*2013*
National Endeavor Fellowship awarded by Ministry of Education, China (Top 3)	*2014,2015*
Honorable Mention in Mathematical Contest in Modeling	*2015*
Third Prize in the 13th Guangdong Collegiate Programming Contest (ACM-ICPC GDCPC'2015)	*2015*
Outstanding Graduate of Sun Yat-sen University (Top 3)	*2016*
CUHK Postgraduate Student Scholarship	*2016–2020*
NAACL 2019 Student Travel Grant	*2019*
CUHK Research Postgraduate Student Grants for Overseas Academic Activities	*2020*

PROFESSIONAL ACTIVITIES

- **Journal Reviewer**: TKDE
- **Conference Reviewer**: EMNLP2019, AAAI2019, AAAI2020, COLING2020
- **Conference Subreviewer**: NIPS2017, SIGIR2017, EMNLP2018, IJCAI2018, NAACL2019, ACL2019, ACL2020
- **Attended Conferences**: ICSE2018, International PhD Forum 2018, NAACL2019, ACL2019

TEACHING ASSISTANT

- CSCI1510: Computer Principles and C Programming	Spring 2019
- CSCI1120: Introduction to Computing Using C++	Fall 2018
- CSCI4140: Open-source Software Project Development	Spring 2018
- ENGG1410A: Linear Algebra and Vector Calculus for Engineers	Spring 2017
- ENGG2440A: Discrete Mathematics for Engineers	Fall 2016

SKILLS

- **Programming**: Python (most frequently used), C/C++/C#, Java, Matlab, Bash
- **Tools**: Linux, Git, Vim, Latex, Deep Learning Frameworks (Pytorch > TensorFlow > Keras)
- **Language**: Native in Mandarin. Fluent in English.

RESEARCH EXPERIENCE

Extend BERT into vision-language fusion for Visual Dialog *Salesforce Research & CUHK*
Mentors at Salesforce: Prof. Steven Hoi & Prof. Shafiq Rayhan Joty *Sept. 2019 to Jan. 2020*

- Our work serves as one of the first attempts to explore pretrained language models for visual dialog. We showcase that BERT can be effectively adapted to this task with simple visually grounded training for capturing the intricate vision-dialog interactions.
- Our VD-BERT is the first unified model that supports both discriminative and generative training settings without any decoders.
- We thoroughly experiment not only to analyze how our model performs with various training aspects and fine-tuning on dense annotations, but also to interpret it via attention visualization, shedding light on future transfer learning research for VisDial tasks.
- Without the need to pretrain on external vision-language data, our model yields new state-of-the-art results in the discriminative setting and promising results in the generative setting on the visual dialog benchmarks.
- Our ensemble version has been ranked as the **top** system in the VisDial leaderboard for more than four months (until 2020/05/02). A **US patent** is being filed for it. Code and pretrained models will be released soon.

Multimodal Keyphrase Generation for Twitter Posts *CUHK*
Advisors: Prof. Michael R. Lyu & Prof. Irwin King *Aug. 2019 to Present*

- To the best of our knowledge, we are the first to study the joint effects of texts and images on social media keyphrase generation.
- We propose a novel Multi-Modality Multi-Head Attention (M^3H-Att) to capture the diverse text-image interactions and exploit *image wordings* to further bridge the two modalities. We also devise a unified framework to effectively combine keyphrase classification and generation and couple their advantages.
- A large-scale dataset is collected with both texts and images from Twitter to benefit future multimodal social media studies.

Topic-Aware Neural Keyphrase Generation for Social Media Language *Tencent AI Lab & CUHK*
Mentor at Tencent: Prof. Jing Li *Aug. 2018 to May 2019*

- We propose a novel *topic-aware neural keyphrase generation model* that leverages latent topics to enrich useful features and enables end-to-end training of latent topic modeling and keyphrase generation.
- Our model is able to identify topic words, naturally indicative of keyphrases, via exploring post-level word co-occurrence patterns.
- We experiment on three newly constructed social media datasets. Two are from English platform Twitter and StackExchange, and the other from Chinese microblog Weibo. The comparison results over both extraction and generation methods show that our model can better produce keyphrases, significantly outperforming all the comparison models without exploiting latent topics.
- Code and datasets can be found here. **79 stars** for this project in the Github so far.

Hashtag Generation for Microblog Posts *Tencent AI Lab & CUHK*

Mentor at Tencent: Prof. Jing Li *May 2018 to Aug. 2018*

- To address the data sparsity challenge, we exploit conversations initiated by the target posts to enrich their contexts. Our approach is benefited from the nature that most messages in a conversation tend to focus on relevant topics.
- Our model employs two encoders, one for the target post and the other for the conversation context, to capture the representations from the *two sources*. To further explore the joint effects of both sources, we propose a bi-attention on the two encoders, which enables the indicative representations to be captured from their joint effects.
- We construct two large-scale datasets from Twitter and Weibo, which will further contribute to future research on relevant tasks. Experimental results based on evaluation metrics from both information retrieval and summarization show that our model generates hashtags closer to human-annotated hashtags than state-of-the-art models.
- Code and datasets can be found here.

Code Completion with Neural Attention and Pointer Networks *CUHK*

Advisors: Prof. Michael R. Lyu & Prof. Irwin King *Jul. 2017 to Mar. 2018*

- We propose a pointer mixture network for better predicting OoV words in code completion, which learns to generate next word from either the global vocabulary or the local context.
- We develop an attention mechanism for code completion, which makes use of the AST structure information.
- Experimental results on two datasets (JavaScript and Python) show that our model significantly outperforms the state-of-the-arts.

Neural Fiber Optic Signal Continuity Prediction *CUHK & Huawei*

Advisors: Prof. Michael R. Lyu & Prof. Irwin King *Sept. 2016 to Nov. 2017*

- We design a neural network-based model for the task of fiber optic signal continuity prediction. Specifically, we design a multi-layer perceptron model that encodes both discrete and continuous input features as input for this task.
- We further employ the parameter freezing and loading techniques together with the C++ algebra package Eigen to accelerate the computation speed.
- Our project solution is able to meet the requirements by Huawei's product teams in terms of prediction accuracy and efficiency.

Compiler Design for Labview *Brigham Young University*

Advisor: Prof. Brent Nelson *Jan. 2016 to Apr. 2016*

- We design a compiler to convert the graphical programming language into C++ code for the Labview. Specifically, we implement the compiler in two stages, between which we design a XML schema for a intermediate uniform representation.
- This project can be found here and is converted to my undergraduate thesis with A-Class grade.

Latent Dirichlet Allocation Distributed System Project *Microsoft Research Asia*

Mentor at MSRA: Cheng Chen *Jul. 2015 to Oct. 2015*

- Work as a team member on the LightLDA project, which is a distributed system for large scale topic modeling. It implements a distributed sampler that enables very large data sizes and models.

Entropy-based Service Selection with Uncertain QoS for Mobile Cloud Computing *SYSU & CUHK*

Advisor at SYSU: Prof. Zibin Zheng *May 2015 to Aug. 2015*

- We design QoS-based service ranking and selection approach to help developers select the service that best satisfies developers' QoS requirements from a set of services in mobile cloud computing.
- Our method has three main advantages over state-of-the-art service ranking and selection techniques: 1) it uses intervals instead of fixed values to represent QoS of services, which are more flexible and practical in mobile cloud computing; 2) it enables developers to specify their QoS requirements in a more simple way; and 3) it employs the hybrid weights that incorporate the Entropy-based weighting technique to overcome the weakness caused by subjective weights.