Xiyan Fu

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Education

Nankai University **Tianjin, China**
M.Sc. in *Computer Science and Technology* *Sep. 2018 - Jun. 2021 (Expected)*
- Supervisor: Prof. Zhenglu Yang
- Research Interest: Text Summarization, Natural Language Processing, Computational Neuroscience

Nankai University **Tianjin, China**
B.Eng. in *Software Engineering* *Sep. 2014 - Jun. 2018*
- Related Courses: Big Data, Data Structure, Operating System, Compiler System, Discrete Mathematics, Linear Algebra, Object-Oriented Programming, Software Engineering, Machine Learning

Research

Topic-aware Summarization and Evaluation **Nankai**
Supervised by Prof. Zhenglu Yang *Jun. 2018 - Feb. 2019*

- Document Summarization with VHTM: Variational Hierarchical Topic-Aware Mechanism

  » Propose a variational hierarchical model which joints topic inference and summarization in an end-to-end manner. It's the first attempt to perform summarization without resorting to a pre-trained topic model.

  » Topic-related parts with different granularities in original documents are extracted and employed via a hierarchical topic-aware technique.

  » The extensive experiments based on CNN/DM demonstrate that besides achieving superior summarizing performance, VHTM can also yield similar topic relevance summaries.

  Highlight: One paper has been accepted by AAAI'20.

- Multi-length Document Summarization and Topic-Oriented Evaluation

  » Propose a new summary evaluation metric based on the topic consistency between articles and summaries.

  » Introduce a topic plug-in that incorporates topic information into variant multi-length document summarization models via a pre-trained topic inference model.

Multi-modal Summarization **Nankai**
Supervised by Prof. Zhenglu Yang *Mar. 2019 - May. 2019*

- Multi-modal Summarization for Video-containing Documents

  » Introduce a novel task that automatically generates a textual summary with significant images from the multi-modal data associated with an article and its corresponding video. A related content-rich multi-modal dataset is constructed for further research.

  » Propose a bi-stream strategy that simultaneously summarizes articles and videos. The bi-hop attention and improved late fusion are employed to refine information from asynchronous multi-modal data.

  Highlight: One paper has been accepted by NAACL'21.

Biologically-inspired Language Modeling **Riken**
Supervised by Dr. Jun Igarashi and Dr. Zhe Sun *Jun. 2019 - Nov. 2019*

- Language Modeling via Adaptational Spiking-inspired Neuron Network

  » Propose neuronal adaptation into the spiking unit in deep learning structure which enables the neurons to explore long-range temporal data.

  » Introduce an end-to-end model trained by backpropagation to combine Artificial Neuron Network (ANN) and Spiking Neuron Network (SNN), and implement it solving Language Modelling.

Dialogue Summarization **Alibaba Damo Academy**
Supervised by Dr. Yating Zhang and Dr. Changlong Sun *May. 2020 - Nov. 2020*

- Unsupervised Dialogue Summarization

  » Propose an unsupervised strategy for dialogue summarization called RepSum, which roots from the hypothesis that a superior summary approximates a replacement of the original dialogue. It trains the unsupervised summarization by self-supervised signals via the auxiliary tasks.

  » Based on the RepSum strategy, we propose the corresponding model and employ it to the extractive-based and abstractive-based summarization.

  Highlight: One paper is under review of ACL 2021.

Experience

Alibaba Damo Academy **Hangzhou, China**
Research Intern *May. 2020 - Nov. 2020*
- Language Technology Lab
- Supervisor: Dr. Yating Zhang and Dr. Changlong Sun
- Project: Dialogue Summarization

Institute of Physical and Chemical Research (Riken) **Saitama, Japan**
Research Intern *Jun. 2019 - Nov. 2019*
- Computational Engineering Application Unit
- Supervisor: Dr. Jun Igarashi and Dr. Zhe Sun
- Project: Biologically-inspired Language Modeling

The University of Texas at Austin **Texas, U.S.**
Visiting Student *Aug. 2017*
- College of Computer Science
- Courses: Big Data, Deep Learning Foundation

Related Papers

1.**Xiyan Fu**, Jun Wang, Jinghan Zhang, Jinmao Wei, Zhenglu Yang, "Document Summarization with VHTM: Variational Hierarchical Topic-Aware Mechanism", in Proceedings of the AAAI Conference on Artificial Intelligence, AAAI'20, pp. 7740-7747.
2.**Xiyan Fu**, Jun Wang, Zhenglu Yang, "MM-AVS: A Full-Scale Dataset for Multi-modal Summarization", accepted by the NAACL 2021 (short paper), in press.
3.**Xiyan Fu**, Yating Zhang, Tianyi Wang, Xiaozhong Liu, Changlong Sun, Zhenglu Yang, "RepSum: Unsupervised dialogue summarization based on Replacement Strategy", under review for ACL'21.
4.**Xiyan Fu**, Zhe Sun, Morteza Heidarinejad, Zhenglu Yang, Jun Igarashi, Ryaturo Himeno, "Language Modeling via Adaptational Spiking-inspired Neuron Network", in revising.

Technical Strength

Programming	Python, C/C++, Java
Toolkit	Tensorflow, PyTorch, Chainer
Language	Chinese(native language), English(fluent, TOEFL 101), Japanese(basic)

Honours&Awards

20' AAAI Student Scholarship
19' Best poster of Engineering Group in Riken Summer School (top 5%)
17' The Second Prize Scholarship of Nankai University (top 10%)
16' Gongneng Scholarship of Nankai University (top 20%)