

XIAO SONG

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INTEREST

Computer Vision, Natural Language Processing, Causality, and Biomedicine.

WORK EXPERIENCE

Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences Jul 2023 - present
Research Assistant
PI: A.R. Ruxin Wang

EDUCATION

Beijing University of Technology Sep 2020 - Jun 2023
M.S. in Computer Science and Technology
Advised by: A.P. Xiaodan Zhang

University of Jinan Sep 2016 - Jun 2020
B.S. in Computer Science and Technology
Advised by: A.P. Lixin Du

PUBLICATIONS

- Xiao Song**, Jiafan Liu, Yun Li, Wenbin Lei, Ruxin Wang (2023). Rethinking Radiology Report Generation via Causal Reasoning and Counterfactual Augmentation. *arXiv*. (Preprint, submitted to CVPR 2024)
- Xiao Song**, Xiaodan Zhang, Junzhong Ji, Ying Liu (2023). Multi-scale Superpixel based Hierarchical Attention Model for Brain CT Classification. In *Journal of Visual Communication and Image Representation (JVCIR)*, 91, 103773.
- Xiao Song**, Xiaodan Zhang, Junzhong Ji, Ying Liu, Pengxu Wei (2022). Cross-modal Contrastive Attention Model for Medical Report Generation. In *The 29th International Conference on Computational Linguistics (COLING)*, (pp. 2388-2397). (Oral)
- Junzhong Ji, Menglong Zhang, **Xiao Song**, Xiaodan Zhang (2022). Multi-scale Superpixel based Fusion Network for Brain CT Classification. In *China Sciencepaper*. 17(11):1173-1180.

PATENT

- 张晓丹(Xiaodan Zhang), 宋晓(**Xiao Song**), 冀俊忠(Junzhong Ji). 一种基于跨模态对比注意力机制的医学报告自动生成方法(A Method for Automatic Medical Report Generation based on Cross-modal Contrastive Attention Mechanism). (CN202210563429.6)

HONORS & REWARDS

- Excellent Master's Thesis (3 A grades given by anonymous reviewers), Beijing University of Technology, 2023.
- Outstanding Graduates, Beijing University of Technology, 2023.
- Postgraduate Science and Technology Innovation Award (First Prize), Beijing University of Technology, 2023.
- Academic Excellence Scholarship (Second-Class, Top 10%), Beijing University of Technology, 2020-2021.
- Outstanding Graduates, University of Jinan, 2020.
- Mathematics Competition of Chinese College Students (First Prize), 2019.

RESEARCH EXPERIENCE

RA, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences

Jul 2023 - present

PI: Ruxin Wang

1. CV, NLP and their Combinations with Biomedicine and Causality.

One first-author manuscript “Rethinking Radiology Report Generation via Causal Reasoning and Counterfactual Augmentation” was submitted to CVPR 2024.

Postgraduate, Beijing University of Technology.

Sep 2020 - Jun 2023

Advisor: Xiaodan Zhang

1. Masteral Thesis “Research on Cross-modal Attention Mechanism based Medical Report Generation Task” where 3 A grades were given by anonymous reviewers was awarded as Excellent Master's Thesis.
2. Multi-scale Superpixel based Hierarchical Attention Model for Brain CT Classification: using superpixel to plot the lesion regions, extracting the appearance information and geometric information, and fusing multi-scale information from coarse to fine with a hierarchical attention structure. (First author, published by JVCIR 2023.)
3. Cross-modal Contrastive Attention Model for Medical Report Generation: mining the potential visual and semantic information from the historical cases for assisting medical report generation. (First author, published by COLING 2022 Oral)
4. Multi-scale Superpixel based Fusion Network for Brain CT Classification. (Third author, published by China Sciencepaper.)
5. A Method for Automatic Medical Report Generation based on Cross-modal Contrastive Attention Mechanism. (Second Author, Chinese patent)

Undergraduate, University of Jinan.

Sep 2016 - Jun 2020

Advisor: Lixin Du

1. A class roll call system based on face recognition. (Shandong University Student Artificial Intelligence Competition, Second-Prize, Fourth Place)
2. A portal game based on Unity. (Shandong University Student Software Design Competition, Second-Prize)

ACADEMIC CONFERENCE

1. The 5th BAAI Conference, Beijing, China, June 9-10, 2023.
2. The 29th International Conference on Computational Linguistics (COLING), October 12-17, 2022, Remote, Oral presentation.
3. China Multimedia 2022, Guiyang, China, July 20-22, 2022. Poster presentation.

SKILLS

Programing: Python, C++, C, PHP, HTML, Java, SQL.

Deep Learning Frameworks: Pytorch.

Others: manager of the research group's Linux deep learning computer servers.