Fenglin Liu

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Education

University of Oxford, UK   [Oct. 2022 – Present]
PhD in Engineering Science (Clarendon Scholar)
- Supervisor: Prof. David Clifton.
- Honors&Awards: Clarendon Scholarship.

Peking University, China   [Sep. 2019 – Jul. 2022]
Master in Computer Science
- Supervisors: Prof. Xu Sun and Prof. Yuexian Zou.
- Honors&Awards: Outstanding Graduates of Peking University (Top 5.0%), Outstanding Graduates of Beijing (Top 1.0%), Outstanding Master Thesis (Top 1.0%), Exceptional Award for Academic Innovation (Top 0.6%), Merit Student Pacesetter (Top 1.0%), National Scholarship (Top 3.0%), Scholarship of Academic Excellence (Top 1.0%).

Beijing University of Posts and Telecommunications, China   [Sep. 2015 – Jun. 2019]
Bachelor of Telecommunication Engineering
- Supervisors: Prof. Xu Sun and Dr. Xuancheng Ren.
- Honors&Awards: Top-10 Students (Top 0.3%), Outstanding Graduates of Beijing (Top 1.0%), Outstanding Graduates of University (Top 5.0%), Outstanding Undergraduate Thesis (Top 1.0%), First-Class Scholarship (Top 5.0%).

Research Interests

I aim at building multimodal interactive AI systems that can not only ground and reason over the external world signals, e.g., vision, audio and knowledge, to understand human language, but also assist humans in decision-making and efficiently solving social concerns, e.g., healthcare. As steps towards this goal, I focus on:
- 1) **Multimodal NLP**: Vision-and-Language, Language Grounding to Image/Video, Language Generation.
- 2) **Machine Learning** for Multimodal NLP: Representation Learning, Unsupervised Learning.
- 3) **AI in Healthcare**: Radiology Report, Gene Ontology, Medical Image Computing.

Publications [Google Scholar]

[16] *Aligning Source Visual and Target Language Domains for Unpaired Video Captioning*
- **Fenglin Liu**, Xian Wu, Chenyu You, Shen Ge, Yuexian Zou, Xu Sun.
- IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2022. **IF: 17.861**

[15] *Graph-in-Graph Network for Automatic Gene Ontology Description Generation*
- **Fenglin Liu**, Bang Yang, Xian Wu, Chenyu You, Shen Ge, Adelaide Chambers, Sheng Wang.
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 2022. **Oral**

[14] *End-to-end Spoken Conversational Question Answering: Task, Dataset and Model*
- Chenyu You, Nuo Chen, **Fenglin Liu**, Xian Wu, Shen Ge, Yuexian Zou.
- Conference of North American Chapter of the Association for Computational Linguistics (NAACL), 2022.

[13] *Auto-Encoding Knowledge Graph for Unsupervised Medical Report Generation*
- **Fenglin Liu**, Chenyu You, Xian Wu, Shen Ge, Sheng Wang, Xu Sun.
- Annual Conference on Neural Information Processing Systems (NeurIPS), 2021.

[12] *Exploring and Distilling Posterior and Prior Knowledge for Radiology Report Generation*
- **Fenglin Liu**, Xian Wu, Shen Ge, Wei Fan, Yuexian Zou.
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2021.

[11] *Competence-based Multimodal Curriculum Learning for Medical Report Generation*
- **Fenglin Liu**, Shen Ge, Xian Wu.
- Annual Meeting of the Association for Computational Linguistics (ACL), 2021. **Oral**

[10] *O2NA: An Object-Oriented Non-Autoregressive Approach for Controllable Video Captioning*
- **Fenglin Liu**, Xuancheng Ren, Xian Wu, Bang Yang, Shen Ge, Xu Sun.
- Annual Meeting of the Association for Computational Linguistics (ACL), 2021.

[9] *Contrastive Attention for Automatic Chest X-ray Report Generation*
- **Fenglin Liu**, Changchang Yin, Xian Wu, Shen Ge, Ping Zhang, Xu Sun.
- Annual Meeting of the Association for Computational Linguistics (ACL), 2021.

[8] *Aligntransformer: Hierarchical Alignment of Visual Regions and Disease Tags for Medical Report Generation*
- Di You, **Fenglin Liu**, Shen Ge, Xiaoxia Xie, Jing Zhang, Xian Wu.
- Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), 2021.

Publications [Google Scholar] (continued)

[7] 🔖 *Non-Autoregressive Coarse-to-Fine Video Captioning*
- Bang Yang, Yuexian Zou, **Fenglin Liu**, Can Zhang.
- AAAI Conference on Artificial Intelligence (AAAI), 2021.

[6] 🔖 *Prophet Attention: Predicting Attention with Future Attention*
- **Fenglin Liu**, Xuancheng Ren, Xian Wu, Shen Ge, Wei Fan, Xu Sun.
- Annual Conference on Neural Information Processing Systems (NeurIPS), 2020.

[5] 🔖 *Federated Learning for Vision-and-Language Grounding Problems*
- **Fenglin Liu**, Xian Wu, Shen Ge, Wei Fan, Yuexian Zou.
- AAAI Conference on Artificial Intelligence (AAAI), 2020. **Oral**

[4] 🔖 *Rethinking Skip Connection with Layer Normalization in Transformers and ResNets*
- **Fenglin Liu**, Xuancheng Ren, Zhiyuan Zhang, Xu Sun, Yuexian Zou.
- International Conference on Computational Linguistics (COLING), 2020.

[3] 🔖 *Aligning Visual Regions and Textual Concepts for Semantic-Grounded Image Representations*
- **Fenglin Liu**, Yuanxin Liu, Xuancheng Ren, Xiaodong He, Xu Sun.
- Annual Conference on Neural Information Processing Systems (NeurIPS), 2019.

[2] 🔖 *Exploring and Distilling Cross-Modal Information for Image Captioning*
- **Fenglin Liu**, Xuancheng Ren, Yuanxin Liu, Kai Lei, Xu Sun.
- International Joint Conference on Artificial Intelligence (IJCAI), 2019. **Oral**

[1] 🔖 *simNet: Stepwise Image-Topic Merging Network for Generating Detailed and Comprehensive Image Captions*
- **Fenglin Liu**, Xuancheng Ren, Yuanxin Liu, Houfeng Wang, Xu Sun.
- Conference on Empirical Methods in Natural Language Processing (EMNLP), 2018. **Oral**

Research Experiences

🔖 Computational Health Informatics (CHI) Lab, **University of Oxford**, UK. [Sept. 2021 – Spet. 2022]
Research Intern, working on AI in Healthcare.
- Advisors: Prof. David Clifton, Dr. Yang Yang and Dr. Jessie Liu.

🔖 **University of Washington**, Seattle, USA. [Apr. 2021 – Sept. 2021]
Research Intern, working on AI in Healthcare.
- Advisor: Prof. Sheng Wang.

🔖 **Tencent Medical AI Lab (JARVIS Lab)**, Beijing, China. [Jan. 2019 – Spet. 2022]
Research Intern, working on AI in Healthcare and Machine Learning.
- Mentors: Principal Researchers: Xian Wu and Shen Ge.

🔖 Language Computing and Machine Learning Group, **Peking University**, China. [Jan. 2018 – Spet. 2022]
Research Assistant, working on Natural Language Processing and Machine Learning.
- Advisors: Prof. Xu Sun and Dr. Xuancheng Ren.

Services

🔖 **Senior Program Committee Member**: IJCAI 2021.

🔖 **Program Committee Member**: NeurIPS 2022, NeurIPS 2021, NeurIPS 2020, ICLR 2023, ICLR 2022, ICLR 2021, ICML 2022, ICML 2021, ACL 2022, ACL 2021, EMNLP 2022, EMNLP 2021, NAACL 2022, CVPR 2023, CVPR 2022, CVPR 2021 (Outstanding Reviewer), ECCV 2022, ICCV 2021, AAAI 2023, AAAI 2022, AAAI 2021 (Top Reviewer), IJCAI 2023, IJCAI 2022 (Distinguished Reviewer), MICCAI 2022, IJCNN 2022, AACL-IJCNLP 2022, AACL-IJCNLP 2020, ACL Rolling Review.

🔖 **Journal Reviewer**: IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI); IEEE/ACM Transactions on Audio Speech and Language Processing (TASLP); IEEE Transactions on Multimedia (TMM); IEEE Transactions on Circuits and Systems for Video Technology (TCSVT); IEEE/CAA Journal of Automatica Sinica.

Honors & Awards

🔖 Clarendon Scholarship, University of Oxford, UK. [2022-2025]

🔖 IJCAI-2022 Distinguished Reviewer Award (Top 3.0%). [2022]

🔖 Outstanding Graduates of Beijing (Top 1.0%), China. [2022]

🔖 Outstanding Graduates of Peking University (Top 5.0%), Beijing, China. [2022]

🔖 Outstanding Master Thesis (Top 1.0%), Beijing, China. [2022]

🔖 Scholarship of Academic Excellence (Top 1.0%), Peking University, China. [2022]

Honors & Awards (continued)

- Exceptional Award for Academic Innovation (Top 0.6%), Peking University, China. [2021]
- National Scholarship (Top 3.0%), Peking University, China. [2021]
- Merit Student Pacesetter (Top 1.0%), Peking University, China. [2021]
- CVPR-2021 Outstanding Reviewer Award. [2021]
- AAAI-2021 Top Reviewer Award. [2021]
- Scholarship of Academic Excellence (Top 1.0%), Peking University, China. [2021]
- AAAI 2020 Student Scholarship. [2020]
- Exceptional Award for Academic Innovation (Top 0.6%), Peking University, China. [2020]
- National Scholarship (Top 3.0%), Peking University, China. [2020]
- Merit Student Pacesetter (Top 1.0%), Peking University, China. [2020]
- NeurIPS 2019 Travel Award. [2019]
- Top-10 Students (Top 0.3%), Beijing University of Posts and Telecommunications, China. [2019]
- Outstanding Graduates of Beijing (Top 1.0%), China. [2019]
- Outstanding Undergraduate Thesis (Top 1.0%), Beijing, China. [2019]

Competitions

- Leaderboard #1 (Ranking 1/270) on Microsoft COCO Image Captioning Challenge. [Jun. 2020]
- Leaderboard #1 (Ranking 1/14) on CCL 2021 Medical Report Generation Challenge. [Jul. 2021]

Talks

- *Graph-in-Graph Network for Automatic Gene Ontology Description Generation*, Online, 2022.
- *Competence-based Multimodal Curriculum Learning for Medical Report Generation*, Beijing, China, Jul. 2021.
- *Introduction to Image Captioning - Past, Present and Future*, Shenzhen, China, Nov. 2020.
- *Federated Learning for Vision-and-Language Grounding Problems*, New York, USA, Feb. 2020.
- *Exploring and Distilling Cross-Modal Information for Image Captioning*, Macao, China, Aug. 2019.
- *simNet: Stepwise Image-Topic Merging Network for Generating Detailed and Comprehensive Image Captions*, Brussels, Belgium, Nov. 2018.

Leadership Experience

- **IEEE Student Branch, Peking University, China.**
  President, Oct. 2019 – Jan. 2021
  ● Organized academic forum, sharing sessions, Q&A meetings 6 times, serving over 100 graduate students on studying and future research planning. The student branch grows from 30 to 120 people.
  ● Organized members to participate in leading AI conferences: NeurIPS 2020, COLING 2020, ACM MM 2020.
  ● Helped members pubilsh papers in leading AI conferences: NeurIPS, NAACL, AAAI, COLING, MICCAI, etc.