Jun Li

june.li@tum.de · (+49) 157 58069551 · https://lijunrio.github.io/junli/

Education

Technical University of Munich Sep.2023 – Present

PhD student under the guidance of Prof. Dr. Julia Schnabel

University of Chinese Academy of Sciences 2020 – 2023

Master of Electronic and Information Engineering, **Rank: top 5%**

Publication

1. Multi-Image Visual Question Answering for Unsupervised Anomaly Detection. **Jun Li**, Cosmin I. Bercea, Philip Müller, Lina Felsner, Suhwan Kim, Daniel Rückert, Benedikt Wiestler, Julia A.Schnabel. (**MICCAI 2024**, under review)
2. Ultrasound Report Generation with Cross-Modality Feature Alignment via Unsupervised Guidance. **Jun Li**, Tongkun Su, Baoliang Zhao, Faqin Lv, Qiong Wang, Nassir Navab, Ying Hu, Zhongliang Jiang. (**TMI**, SCI Q1, under review)
3. Design as Desired: Utilizing Visual Question Answering for Multimodal Pre-training. Tongkun Su*, **Jun Li***, Xi Zhang, Baoliang Zhao, Ying Hu, Qiong Wang, Haibo Jin, Faqin Lv, Hao Chen. (**MICCAI 2024**, under review)
4. Multimodal Self-supervised Pretraining with Dynamic Keyword Mining for Ultrasound Image Recognition. Tongkun Su*, **Jun Li**, Baoliang Zhao, Haibo Jin, Hao Chen, Qiong Wang, Faqin Lv, Pheng-Ann Heng, Ying Hu. (**MIA**, SCI Q1, under review)
5. A Self-Guided Framework for Radiology Report Generation. **Jun Li**, Ying Hu, Shibo Li, Huiren Tao. (**MICCAI 2022**, Top A, **Early Accept**).
6. XctNet: Reconstruction network of volumetric images from a single X-ray image. Zhiqiang Tan, **Jun Li**, Huiren Tao, Shibo Li, Ying Hu.(**CMIG**, SCI Q1)
7. A report generation system and terminal equipment. **Jun Li**, Yin Hu, Shibo Li, Huiren Tao. (National Invention Patent)
8. An automatic measurement system and terminal equipment for scoliosis. **Jun Li**, Yin Hu, Shibo Li, Huiren Tao. (National Invention Patent, in preparation)
9. An Evaluation Metric for Medical Reports. **Jun Li**, Yin Hu, Qiong Wang, Baoliang Zhao, Shibo Li. (National Invention Patent, in preparation)
10. A three-axis clamping and conveying robot with a ladder-climbing mechanism. Zhuoxing Wu, Li Li, Kaizhe Chen, Guitong Chen, **Jun Li**. (National Invention Patent)

Experience

Ultrasound report generation and multimodal representation learning. Mar. 2021 – June.2023

Role: Project manager **Responsibilities:** Technology development

- Constructed ultrasound images and Chinese report datasets with different organs and different diseases.
- Proposed a novel Chinese ultrasound report generation framework.
- Development of cross-modal representation learning models for ultrasound images and clinical text.

Automatic radiology report generation. Miccai 2022 Mar. 2021 – June.2023

Role: Project manager **Responsibilities:** Technology development, Manuscript drafting

- Proposed a self-guide framework which consists of unsupervised and supervised deep learning methods that imitate the process of human learning and writing.
- Extensive experiments demonstrate the utility of our framework in the majority of cases, showing its superior performance over state-of-the-art methods.

Reconstruction CT volumetric images from a single X-ray image. CMIG Jun. 2020 – Dec. 2020

Role: Project member **Responsibilities:** Data analysis, Code development, Manuscript drafting

- Proposed a multi-branches 3D network to reconstruct CT volumetric images from a single X-ray image.
- Compared with the SOTA method, the performance of the PSNR and SSIM index is improved by 3.89% and 3.95% respectively.

Generating ultrasound images from medical text reports. GitHub Jan. 2021 – Mar. 2021

Role: Project manager **Responsibilities:** Technical research, Code development

- Developed an algorithm for synthesizing ultrasound images from Chinese medical reports.
- Discovered the limitations of the GAN-based algorithm in the application of generating ultrasound images from the medical report.

Scoliosis angle measurement system. GitHub Jun. 2020 – Oct. 2020

Role: Project manager **Responsibilities:** Data analysis, Code development

- Responsible for communicating with hospitals, collecting scoliosis data, and labelling X-ray images.
- Proposed a novel algorithm based on traditional image processing methods to calculate the maximum Cobb angle of scoliosis from frontal and lateral X-ray images.

A real-time sign language translation system. Mar. 2020 – Jun. 2020

Role: Project manager **Responsibilities:** Technology development

- Proposed a new adaptive gesture segmentation algorithm based on HSV and YCrCb. In addition, we designed a new gesture recognition network that is based on LeNet-5.
- Compared with the SOTA method, the precision of our method is about 85.99%, and the processing time of each image is about 1.47ms.

Detection systems in RoboMaster University Championship. GitHub Jun. 2018 – Mar. 2019

Role: Team leader **Responsibilities:** Technology development

- Developed a real-time robot automatic shooting system, which can precisely detect the region of interest on the robot and return the shooting coordinates to the PTZ system.
- Developed a power rune detection system based on neural networks, which can assist the robot in accurately shooting the target rune region and earning additional rewards.

Intern Experience

Xiaohongshu App (AI Algorithm Engineer) Mar. 2021 – Jun. 2021

- Responsible for iterating and deploying computer vision-related models in the e-commerce scene, such as advertisement detection and high-quality cover recognition.
- Through improving the algorithms, the average recall rate of each category of advertisement multi-classification model is 82%, and the accuracy rate of the cover recognition model is 85%.

DJI Technology (STEAM Engineer) Nov. 2019 – Mar. 2020

- Responsible for converting the technical knowledge in robot competitions into document resources, including writing technical documents, developing a series of AI textbooks for Advanced Tutorial of Robot and Artificial Intelligence, and designing AI learning courses for teenagers.

Honors and Awards

National Scholarship Awarded in University of Chinese Academy of Sciences Nov. 2022
Outstanding Student Awarded in University of Chinese Academy of Sciences 2021-2022
Outstanding Student leader Awarded in University of Chinese Academy of Sciences 2021-2022
National Special Place Awarded in RoboMaster University Technical Challenge Jul. 2018
National 2nd Prize Awarded in RoboMaster University Championship Jun. 2018
National 1st Place Awarded in RoboMaster University Championship Jun. 2019
National 1st Place Awarded in RoboMaster University Technical Challenge Jul. 2019
Pengcheng scholarship Awarded in Shenzhen University Nov. 2019
Learning Star Scholarship Awarded in Shenzhen University Oct. 2019
Double Innovation Star Scholarship Awarded in Shenzhen University Aug. 2018
Star of Public Welfare Scholarship Awarded in Shenzhen University Dec. 2017