Ruru Xu

Citizenship: Chinese
E-mail: xuru0927@gmail.com
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Academic webpage
Google scholar page

PROFILE

I am a PhD student at Istanbul Technical University, Computer Engineering, where I have studied since 2021. I work as a researcher in the 2232 International Fellowship for Outstanding Researchers Program of TUBITAK(Project No: 118C353) and the ITU BAP research funds (Project ID: 47296). My research focuses on MRI reconstruction using deep learning and reinforcement learning methods. My professor is Ilkay Oksuz.

From 2018 to 2020, I was an exchange student at the Lab of Interactive Media Computing at Fudan University. During this time, I was working on projects related to autonomous driving, which involved object detection, pedestrian recognition, Instance segmentation, path planning, etc., working under the guidance of Professor Cheng Jin.

From 2017 to 2020, I pursued my Master's studies at the SICT(Shanghai Institute of Computing Technology), with a research direction in computer vision. My professor is Xinli Min.

From 2017 to 2020, I interned at Shanghai Shen Teng Technology Co., Ltd. . My work there involved contributing to smart city-related projects.

In 2016, I earned my Bachelor's degree in Computer Science and Technology.

EDUCATION and RESEARCH EXPERIENCE

PhD Candidate, GPA: 3.43, **March 2021-present**
Computer Engineering
Istanbul Technical University, Istanbul, Turkey
Thesis: Accelerated MRI Sampling and Reconstruction with Reinforcement Learning

Exchange learning, **April 2018-March 2020**
Lab of Interactive Media Computing
Fudan University, Shanghai, China

Master's Degree, GPA: 3.78, **September 2017-March 2020**
Engineering Computer Software and Theory
Shanghai Institute of Computing Technology(SICT), Shanghai, China
Thesis: Research and Implementation of Intelligent Evaluation Algorithm of Street Cleanli-

ness Based on Vision **Online**

Bachelor's degree, **September 2012-July 2016**
Computer Science and Technology
Liaocheng University, Liaocheng, China

Work Experience

Student Intern, **September 2017-March 2020**
R&D department
Shanghai Shen Teng Technology Co., Ltd., Shanghai, China
Working on smart city related projects

PUBLICATIONS

Journal Papers:

1. **Xu R**, Oksuz I. "Undersampled K-Space Information Recovery with Long-Range Temporal Memory for Multi-Coil MRI Reconstruction." Computer Methods and Programs in Biomedicine [Q1; IF:4.8, Under Review]
2. **Xu R**, K Anvari Hamedani, Yang Z, Oksuz I. "Hierarchical K-Space sampling with Mamba-based Reinforcement Learning for Efficient MRI Diagnosis." Expert Systems With Applications [Q1; IF:7.5, Under Review]**Online**
3. **Xu R**, Oksuz I. "Optimized K-Space Under-sampling for Brain MRI Reconstruction with Reinforcement Learning." Pattern Recognition Letters 2026. (Q1; IF:3.3) [Accepted, available online very soon] **Code**
4. Wang F, ...etc..**Xu R**, Oksuz I...etc.., Towards Modality- and Sampling-Universal Learning Strategies for Accelerating Cardiovascular Imaging: Summary of the CMRxRecon2024 Challenge. (Top Journal: TMI; IF:9.8) **Online**
5. **Xu R**, Oksuz I. A Reinforcement Learning Approach for Optimized MRI Sampling with Region-Specific Fidelity. Neurocomputing 2025. (Q1, IF: 6.5) **Online Code**
6. **Xu R**, Oksuz I. Segmentation-aware MRI subsampling for efficient cardiac MRI reconstruction with reinforcement learning. Image And Vision Computing 2024. (Q1, IF: 4.2) **Online**

Conference Papers:

1. **Xu R**, Özer C, K Anvari Hamedani, Oksuz I. "Trust-Aware Hallucination Mitigation for Accelerated MRI Reconstruction" (MICCAI2026, Under Review)
2. K Anvari Hamedani, N Razizadeh, **Xu R**, S Nabavi "Physics-informed Generative Model for Joint Reconstruction and Denoising of Cardiac MR Imaging" (MICCAI2026, Under Review)

3. **Xu R**, Oksuz I. "HierAdaptMR: Cross-Center Cardiac MRI Reconstruction with Hierarchical Feature Adapters" (MICCAI2025 CMRxRecon Challenge 3rd place) **Online Code**
4. **Xu R**, Oksuz I. "Adaptive k-space Radial Sampling for Cardiac MRI with Reinforcement Learning" (MICCAI2025 STACOM Workshop Oral) **Online Code Presentation**
5. **Xu R**, Özer C, Oksuz I. HyperCMR: Enhanced Multi-Contrast CMR Reconstruction with Eagle Loss. (MICCAI2024 CMRxRecon Challenge 5th place). **Online Code Presentation**
6. **Xu R**, Oksuz I. Efficient MRI reconstruction with reinforcement learning for automatic acquisition stopping. (MICCAI2022 STACOM Workshop Oral). **Online Presentation**
7. **Xu R**, An J, Su L, Min X. Banknotes serial number coding recognition." In 2019 IEEE International Conference on Big Data (Big Data), pp. 5101-5107. IEEE, 2019. **Online**

HONORS and AWARDS

4th Place Award **Brazil, February 2026**
Special Task 2: CMR reconstruction model for pediatric imaging evaluation, CMRxRecon2025 Challenge (MICCAI) **Certification**

5th Place Award **Brazil, February 2026**
Special Task 1: CMR reconstruction model for 5T evaluation, CMRxRecon2025 Challenge (MICCAI) **Certification**

3rd Place Award **South Korea, September 2025**
Regular Task 2: CMR reconstruction model for multiple diseases evaluation. CMRxRecon2025 Challenge (MICCAI). **Certification**

5th Place Award **South Korea, September 2025**
Regular Task 1: CMR reconstruction model for multi-center evaluation. CMRxRecon2025 Challenge (MICCAI). **Certification**

5th Place Award **Morocco, October 2024**
CMRxRecon2024 Challenge (MICCAI). **Certification**

Full Ph.D. Scholarship, **March 2021-present**
Istanbul Technical University, Istanbul, Turkey

Third-Class Prize **May 2018**
China National Mathematical Contest in Modeling for Graduate Students. Officially recorded

on Master's degree transcript

TOEFL score

- Score: 108 · Jan 2021, Reading:28, Listening:26, Speaking:24, Writing:30

REFERENCES

- Ilkay Oksuz
  Assoc. Prof., Istanbul Technical University, Computer Engineering Department
  Research Associate, King's College London, Biomedical Engineering Department
  E-mail: oksuzilkay@itu.edu.tr
- Cheng Jin
  School of Computer Science, Shanghai Key Lab of Intelligent Information Processing, Fudan University, Shanghai, China
  Innovation Center of Calligraphy and Painting Creation Technology, MCT, China, Fudan University, Shanghai, China
  E-mail: jc@fudan.edu.cn
- Xinli Min
  Shanghai Energy saving Engineering and Technology Association (SESETA)
  Shanghai Shen Teng Technology Co., Ltd.
  E-mail: mizhui@sina.com