Xiao Yang

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Education

- **Xidian University** Xi'an, China
  School of Telecommunication Engineering *2020 - present*
  - Weighted average score in major courses: 90.21
  - GPA: 3.9/4.0 IELTS: 6.5

Project Experience

- **Knowledge-driven Wireless Source Allocation** UNIC Lab, Xidian University
  Supervisor: Nan Cheng and Ruijin Sun *Sep 2022 - present*
  Specifically, we incorporate communication topology and permutation invariance into neural networks for computation offloading.
  Key Involvement:
  - Engaged in extensive literature review on permutation invariance and cybertwin, gaining profound insights into these domains.
  - Developed the reinforcement learning environment and applied QMIX and VDN algorithms to train agents and evaluate their performance in the experiments.
  - Introduced graph convolutional networks (GCN) into QMIX algorithm, and simulation results demonstrated the performance improvement brought by permutation invariance.

  Currently, I have completed the writing of my thesis and submitted it to VTC 2023 Fall.

- **Intelligent Auscultation System** Innovation Training Program
  leader, cooperated with the First Affiliated of Xi'an Jiaotong University *Dec 2021 - May 2023*
  We have successfully built an AIoT smart auscultation framework, including the hardware, the database, display interface, and auscultation algorithm.
  Key Involvement:
  - Manually extracted MFCC and Mel spectrogram features from heart and lung sounds, classify using machine learning classifier.
  - Transformed raw data into Mel spectrograms, curated dataset, and employed a pre-trained VGG-16 model for accurate classification.

  Currently, we are collecting COPD symptom data and build specific database to facilitate the practical implementation of the project.

- **Visual Media Communications**
  Course Design *Mar 2023 - Jun 2023*
  I independently develop an end-to-end visual communication system using C++.
  - Reimplemented classic JPEG image compression algorithm, achieving efficient image compression using C++ programming and various techniques.
  - Implemented an image codec using ffmpeg with H.265 (HEVC) compression.
  - Implemented network transmission of compressed video using TCP and UDP protocols.

Awards

- Internet of Things Design Competition: Second Prize in Northwest Region

- **Chinese Collegiate Computing Competition:** National Second Prize
- The 9th Shaanxi Province College Students "Internet +" Innovation and Entrepreneurship Competition: Silver award
- The 13th Higher Mathematics Competition for College Students in Shaanxi Universities: Second Prize
- **Social Scholarship from OurPalm** (only 5 candidates)
- The 14th Mathematics Competition of Chinese College Students: First prize of Shaanxi Province
- The 24th National Collegiate Robotics and Artificial Intelligence Competition: First prize of Shaanxi Province
- **Outstanding Students & First-class Scholarship**

Publication

R. Sun, X. Yang, N. Cheng, X. Wang, C. Li, "Knowledge-Driven Multi-Agent Reinforcement Learning for Computation Offloading in Cybertwin-Enabled Internet of Vehicles," arXiv preprint arXiv:2308.02603, 2023. [PDF]

Other

- **Internship:** Shaanxi Zhice Xinkong Medical Technology Co., Ltd (2023.06)
  Major responsibility: Integration of AI with electrocardiogram signals to achieve intelligent diagnosis.
- **Service:**
  - Executive chairman of the youth league committee of the school of telecommunication engineering. (2022.09 - 2023.06)
  - Epidemic volunteer. (2022.01)
  - Student teaching assistants (Advanced Mathematics A(II), Functions of Complex Variables, Communication Electronics System Design Practice).
- **Software Skills:** Python, Latex, Office, C++