Yin Tang

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Machine Vision, Deep Learning, Sensor Signal Processing

Education

Central South University，PhD candidate	Changsha, Hunan, China
Big Data Institute, Computer Science and Technology	2022 - Now
Nanjing Normal University，Master Student	Nanjing, Jiangsu, China
School of Electrical and Automation Engineering, Control Science and Engineering	2019 - 2022
Hunan Institute of Engineering, Bachelor Student	Xiangtan, Hunan, China
School of Electrical and Information Engineering, Automation	2014 - 2018

Publications

- Y. Tang, Q. Teng, L. Zhang, et al. Layer-Wise Training Convolutional Neural Networks With Smaller Filters for Human Activity Recognition Using Wearable Sensors, 2020, 21(1): 581-592, DOI: 10.1109/JSEN.2020.3015521, IEEE Sensors Journal (ESI 1% Highly Cited, CiteScore: 6.00, IF: 4.325).

- Y. Tang, L. Zhang, Q. Teng, et al. Triple Cross-domain Attention on Human Activity Recognition Using Wearable Sensors, 2021, DOI: 10.1109/TETCI.2021.3136642, IEEE Transactions on Emerging Topics in Computational Intelligence (CiteScore: 10.20, IF: 4.851).

- Y. Tang, L. Zhang, F. Min, et al. Multi-scale Deep Feature Learning for Human Activity Recognition Using Wearable Sensors, 2022, DOI: 10.1109/TIE.2022.3161812, IEEE Transactions on Industrial Electronics (CiteScore: 17.80, IF: 8.162).

- Y. Tang, L. Zhang, H. Wu, et al. Dual-branch Interactive Networks on Multichannel Time Series for Human Activity Recognition, 2022, DOI: 10.1109/JBHI.2022.3193148, IEEE Journal of Biomedical and Health Informatics (CiteScore: 10.20, IF: 7.021).

- Q. Teng, L. Zhang, Y. Tang, et al. Block-wise Training Residual Networks on Multi-channel Time Series for Human Activity Recognition, 2021, 21(16): 18063-18074, DOI: 10.1109/JSEN.2021.3085360, IEEE Sensors Journal (CiteScore: 6.00, IF: 4.325).

- X. Cheng, L. Zhang, Y. Tang, et al. Real-time Activity Recognition Using Conditionally Parametrized Convolutions on Mobile and Wearable Devices, 2022, 22(6): 5889-5901, DOI: 10.1109/JSEN.2022.3149337, IEEE Sensors Journal (CiteScore: 6.00, IF: 4.325).

- C. Han, L. Zhang, Y. Tang, et al. Human Activity Recognition by Heterogeneous Convolutions on Wearable Devices, 2022: 116764, DOI: 10.1016/j.eswa.2022.116764, ELSEVIER Expert Systems with Applications (CiteScore: 12.70, IF: 8.665).

- C. Han, L. Zhang, Y. Tang, et al. Understanding and Improving Channel Attention for Human Activity Recognition by Temporal-aware and Modality-aware Embedding, 2022, DOI: 10.1109/TIM.2022.3191653, IEEE Transactions on Instrumentation and Measurement (CiteScore: 6.10, IF: 5.332).

- More UNDER REVIEW papers in progress...

Research Experience

- Efficient Convolutional Networks Based on Layer-by-Layer Loss Training for Human Activity Recognition, Software copyright, 2020SR0841994.
- Recognition System of Human Activity Mobile Intelligent Terminal Based on Convolutional Neural Network, Software copyright, 2020SR0841988.
- Lightweight Convolutional Neural Networks for Human Activity Recognition, Software copyright, 2020SR0725258.
- Fourier Spectrogram Data Analysis Based on Convolutional Networks, Software copyright, 2020SR0747654.
- A Method for Human Activity Recognition Based on Convolutional Neural Network, Patent, CN 111723662 A.
- Prediction of watt temperature based on neural network for hydropower station, Enterprise project, State Grid Hunan Hydropower Branch, Project leader.

  The project is based on the tile temperature of the hydropower station unit, and based on the deep neural network theory, the bearing bush temperature prediction system model is established and the bearing bush temperature is predicted, so as to achieve the purpose of predicting the tile temperature and preventing tile burning.
- Video processing system for garbage classification based on deep learning, Enterprise project, Suzhou Futai Information Technology Co., Ltd., Project participants.

  Based on the needs of urban domestic waste classification, this project builds a deep learning waste classification video processing system based on the FaceNet neural network model. Through the integration of face recognition and garbage classification technology, the correct, orderly and classified delivery of urban domestic garbage can be realized.
- Design of Human Gesture Recognition System Based on Lego Deep Convolutional Network, 2020 Student Natural Science Foundation of Nanjing Normal University, key projects，Project leader.

  This project is based on mobile wearable device sensors. By replacing the traditional convolutional neural network convolution kernel with a set of Lego convolution kernels with a smaller number of channels that do not depend on any special network structure, the STE method is used to optimize Lego The arrangement of a set of Lego convolution kernels in the convolution kernel module, and the Split-Transform-Merge strategy is used to further accelerate the Lego convolution calculation. Finally, the trained network model is transplanted to the smartphone to realize real-time human gesture recognition.

Honor&Award

- 2014-2016 National Encouragement scholarship of Hunan University of Engineering, Merit Student.
- 2019-2022 Nanjing Normal University First-Class Academic Scholarship(3/32), Outstanding Graduate Scholarship(1/310), Outstanding Graduate.
- The third provincial prize of "Black Science and Technology" special Competition of the 17th "Challenge Cup" National College Students Extracurricular Academic Science and Technology Works Competition in 2021.

Academic Services

- Reviewer for IEEE Sensors Journal
- Reviewer for The Computer Journal
- DMAP 2022 PC Member

Summary

- CET-6, National Computer Rank Examination-C Language Level 2.
- I am Proficient in Python programming, data structures and algorithms, good at using machine learning libraries such as Numpy, Pandas, Sklearn, etc., good at LaTex typesetting skills, familiar with SVM, DNN, CNN, RNN, LSTM, GAN (based on Pytorch) and other model algorithms.
- I am good at tracking the dynamics of cutting-edge disciplines, actively reading papers of top conferences such as CVPR, ICCV, ECCV, NIPS, ICML, etc., and has a certain foundation of English paper reading and writing.
- I am a strong research interest in the field of artificial intelligence such as machine learning, and has the spirit of assiduous research. He is currently working on human behavior recognition based on wearable sensor devices. Plan to develop long-term in the field of computer vision, and expect to publish high-level conferences and academic papers in journals under the guidance of supervisors during future doctoral studies, laying an academic foundation for long-term development in the future.