

Personal Information

Name: Chunyu Hu Date of Birth: 1990/04/12 Gender: Female
English: CET6 (570) Major: Computer application technology Degree: Ph.D



Education

- | Time | School | Degree | Score |
|-----------------|--|-----------------|---------------------------|
| 2015.09-Now | Institute of Computing Technology, CAS | Ph.D. Candidate | Average scores: 85.75/100 |
| 2012.09-2015.09 | Shandong Normal University | Master | Score ranking: 1/31 |
| 2008.09-2012.09 | Shandong Normal University | Bachelor | Score ranking: 1/48 |

Publications

First Author (including the tutor is the first author and the applicant is the second author):

- Chunyu Hu, Yiqiang Chen, Xiaohui Peng, et al. "A novel feature incremental learning method for sensor-based activity recognition." *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, DOI: 10.1109/TKDE.2018.2855159, preprint.
- Yiqiang Chen, Chunyu Hu, Bin Hu, et al. "Inferring Cognitive Wellness from Motor Patterns." *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 30 (12): 2340-2353.
- Chunyu Hu, Yiqiang Chen, Lisha Hu, et al. "A novel random forests based class incremental learning method for activity recognition." *Pattern Recognition* 78 (2018): 277-290.
- Chunyu Hu, Hong Liu, and Peng Zhang. "Cooperative co-evolutionary artificial bee colony algorithm based on hierarchical communication model." *Chinese Journal of Electronics* 25.3 (2016): 570-576.
- Chunyu Hu, Hong Liu, Dianjie Lu. "Monocular image based 3D-scene reconstruction method." *Application Research of Computers* 31.6 (2014): 1909-1913. (in Chinese)

Co-Author:

- Tao Xie, Yiqiang Chen, Lisha Hu, Chenlong Gao, Chunyu Hu, et al. "A multistage collaborative filtering method for fall detection." *Neural Networks (IJCNN)*, 2017 International Joint Conference on. IEEE, 2017, pp. 3355-3362.
- Lisha Hu, Yiqiang Chen, Jindong Wang, Chunyu Hu, et al. "OKRELM: online kernelized and regularized extreme learning machine for wearable-based activity recognition." *International Journal of Machine Learning and Cybernetics* (2017): 1-14.
- Yiqiang Chen, Meiyu Huang, Chunyu Hu, et al. "A coarse-to-fine feature selection method for accurate detection of cerebral small vessel disease." *Neural Networks (IJCNN)*, 2016 International Joint Conference on. IEEE, 2016, pp. 2609-2616.
- Lisha Hu, Suzhen Wang, Yiqiang Chen, Chenlong Gao, Chunyu Hu, et al. "Fall detection algorithms based on wearable device: a review." *Journal of Zhejiang University (Engineering Science)*, 2018, 52(9): 1717-1728. (in Chinese)
- Lisha Hu, Suzhen Wang, Yiqiang Chen, Chunyu Hu, et al. "Objective equilibrium measurement based kernelized incremental learning method for fall detection". *Journal of Computer Applications*, 2018, 38(4): 928-934. (in Chinese)
- Zhengyu Huang, Yiqiang Chen, Junfa Liu, Xinlong Jiang, Chunyu Hu. "Indoor Localization Method and Platform Based on Crowdsourcing." *Geo-Information Science*, 18.11 (2016): 1476-1784.

Patent:

- Yiqiang Chen, Chunyu Hu, Chenlong Gao. "Activity recognition updating method and system for dynamic sensor configuration", No. 201810315805.3, Date: 2018.
- Yiqiang Chen, Chunyu Hu, Chenlong Gao. "Class Incremental Learning method and system for activity recognition", No. 201810354381.1, Date: 2018.
- Yiqiang Chen, Chunyu Hu, Lisha Hu, et al. "Correlation analysis method and system between motor pattern and cognitive ability", No. 201710148529.1, Date: 2017.
- Yiqiang Chen, Jindong Wang, Jianfei Shen, Chunyu Hu, et al. "Transfer learning method and system for large scale data annotation", No. 201611165253.X, Date: 2016.
- Yiqiang Chen, Jindong Wang, Yuxin Zhang, Chunyu Hu, et al. "Motion data mapping method and system for human-robot", No. 201611102793.3, Date: 2016.

Software Copyright:

- Yiqiang Chen, Chunyu Hu, et al. "Human motion data analysis and conversion software based on motion capture data V1.0", No. 2016SR329827.

Awards

- National Scholarship for PhD students, Ministry of Education 2018.
- UCAS-BHP Billiton Scholarship 2018.
- Pacemaker to Merit Student, UCAS 2018.
- Excellence scholarship of ICT 2017.
- Outstanding Volunteer Pacesetter of ICT 2017.
- Merit Student, UCAS 2017.
- Excellent Student Cadre, UCAS 2017.
- Excellent master's degree thesis in Shandong Province 2016.
- Outstanding Volunteer in ICT, CAS 2016.
- Merit Student, UCAS 2016.
- Outstanding graduates in Shandong Province 2015.
- 2015 outstanding academic papers of the Shandong Computer Federation 2015.
- Outstanding graduates in Shandong Normal University 2015.
- Outstanding students in Shandong Province 2014.
- Merit Student, Excellent Student Cadre, First-class Graduate Scholarships in Shandong Normal University 2014.
- Graduate National Scholarship for Doctoral Students, 2013.
- Excellent bachelor's degree thesis in Shandong Province 2013.
- National Encouragement scholarship 2011.

Project

2017.9-Now Multi-modal interactive collaborative key technologies for big data

Project introduction: This project comes from National Key Research and Development Plan. It studies virtual-reality fusion based human-computer interaction system and application.

My work: I study incremental learning algorithms for big data.

1. To tackle new emerging classes, I propose a novel random forest based class incremental learning method (CIRF). It is able to avoid the retraining of classification models and largely decrease the training time when new class data emerges.

2. To adapt to the emergence of new sensors, I propose a novel feature incremental learning method, which named FIRF. It is able to effectively avoid retraining and improve the classification accuracy when new sensors emerge.

Achievement: I have write two papers about these works. One paper is published on the top journal of pattern recognition (Pattern Recognition), and the other one is subscribed to the top journal of data mining(TKDE). In addition, I also write two patents, which is in modification now.

2016.9-Now Incremental learning method for wearable activity recognition

Project introduction: This project comes from the National Natural Science Foundation of China (NSFC). It studies the incremental learning method for wearable activity recognition based on large-scale data, to construct a unified data-feature-classification incremental learning model.

My work: I study the unified incremental learning method, which is able to tackle dynamic changes in data distribution, feature dimension and class number at the same time. Besides, I propose a novel framework (MOCA) for the correlation analysis between motor pattern and cognitive ability.

Achievement: My paper has been accepted by the top journal of data mining(TKDE). I also write a paten, which is being processed.

2016.9-2017.4 Development of an accurate model tester for wearable activity sensing

Project introduction: This project comes from Chinese Academy of Sciences Research Equipment Development Project. It aims to develop a real-time fine-grained data generation and precise evaluation test integration system for behavior-sensing models.

My work: I designed a software to analyze the human motion data based on motion capture data. It takes BVH files as input and realizes the transformation of the joint point between human and robot.

Achievement: I obtained a copy of software copyright and collected 17 motion data from 51 subjects by Kinect. The size of collected motion data is about 2T.

Skills

- Familiar with machine learning algorithms, data mining algorithms, wearable computing and smart sensing algorithm.
- Familiar with C++, matlab, C#. Good modular program design idea and good code writing style.
- English skill: certification of CET -4, CET -6(570), good English communication skill.

Self-assessment

I have good professional skills. And I can always keep calm during working. I have strong eager to learn. I have good cooperation ability and strong ability to resist.