Wei-Long Zheng (郑伟龙)

Citizenship: P.R. China Date of Birth: Oct 8, 1988

Name of Fellowship

Machine Learning, Computational Neuroscience

Contact Information

Email: weilonglive@gmail.com Mobile: +86-18817866535
Webpage: http://bcmi.sjtu.edu.cn/~zhengweilong/
Address: Department of Computer Science, Shanghai Jiao Tong University, No. 800 Dongchuan Rd., Shanghai, China 200240

Education

PhD of Computer Science and Technology
Shanghai Jiao Tong University (SJTU) Shanghai, China (Sep.2012-Present)
Visiting Student of Intelligent Systems Group
University of the Basque Country (UPV/EHU) San Sebastian, Spain (Sep.2014-Mar.2015)
Bachelor of Information Engineering
South China University of Technology (SCUT) Guangzhou, China (Sep.2008-July2012)
Major: Information Engineering (Talented Students Program) Cumulative GPA: 3.82/4.0(top5%)

Research Interest

Affective Computing, Brain-Computer Interface, Machine Learning, and Pattern recognition.

Research Experience

Multimodal Emotion Recognition with EEG and Eye Movements (2013.9-present)
Research Assistant. Center for Brain-like Computing and Machine Intelligence, SJTU
- Designed and implemented algorithms based on EEG and eye movements for emotion recognition

EOG and EEG-Based Vigilance Estimation and Prediction for Drivers (2014.9-present)
Research Assistant. Center for Brain-like Computing and Machine Intelligence, SJTU
- Designed and implemented algorithms based on EOG and EEG for vigilance estimation and prediction
- Designed wireless wearable EOG and EEG devices for vigilance estimation and prediction

3D Reconstruction Based on Depth Camera (2012)
Team Leader. Human-Computer Interaction Technology Innovation Center, SCUT
- Implemented the image geometric correction algorithm.
- Completed the algorithm for Registration of Depth Image and Color Image.
- Published an international conference paper.

Computer Vision Based Embedded Driver Fatigue Detection System (2012)
Undergraduate Thesis. South China University of Technology SCUT
- Established the infrared illuminating system.
- Designed and developed innovative algorithms for face/eye automatic image segmentation (color and monochromatic images) and eye status determination in condition of daylight and infrared illumination respectively.
- Designed and implemented algorithms of eye tracking in successive frames of the video for computer vision based fatigue detection.

Embedded QR code Recognition System Research Based on Image Processing (2011)
Team Leader. Human-Computer Interaction Technology Innovation Center, SCUT
- Designed the basic frame of the system.
- Designed and completed the hardware and software of the test system.
- Designed an algorithm to recognize QR code even in the complex background.
- Designed the user interface with QT programming.

- Documented the patents.

High Power LED Power Supply Based on Constant Current Drive (2011)
Research Assistant. Student Research Plan, SCUT
- Designed the circuits of the system.
- Simulated the circuits of the system.

Publications (Total Citations: 46, h-index: 3, i10-index: 1, from Google Scholar)

[1] **Wei-Long Zheng**, and Bao-Liang Lu, Personalizing EEG-based Affective Models with Transfer Learning, Accepted by 25th International Joint Conference on Artificial Intelligence (IJCAI'16), 2016.

[2] **Wei-Long Zheng**, Jia-Yi Zhu, and Bao-Liang Lu, Identifying Stable Patterns over Time for Emotion Recognition from EEG, arXiv preprint arXiv:1601.02197 (2016). [link] [Media Report]

[3] **Wei-Long Zheng**, Shan-Chun Shen and Bao-Liang Lu, Online Depth Image-Based Object Tracking with Sparse Representation and Object Detection, Accepted by Neural Processing Letters, 2016.

[4] Wei Liu, **Wei-Long Zheng**, and Bao-Liang Lu, Multimodal Emotion Recognition Using Multimodal Deep Learning, arXiv preprint arXiv:1602.08225 (2016).

[5] Xue-Qin Huo, **Wei-Long Zheng** and Bao-Liang Lu, Driving Fatigue Detection with Fusion of EEG and Forehead EOG, Accepted by 2016 International Joint Conference on Neural Networks (IJCNN'16).

[6] Lili Wang, **Wei-Long Zheng**, Haiwei Ma and Bao-Liang Lu, Measuring Sleep Quality from EEG with Machine Learning Approaches, Accepted by 2016 International Joint Conference on Neural Networks (IJCNN'16).

[7] **Wei-Long Zheng**, and Bao-Liang Lu, Investigating Critical Frequency Bands and Channels for EEG-based Emotion Recognition with Deep Neural Networks, IEEE Transactions on Autonomous Mental Development (IEEE TAMD), vol. 7, no. 3, pp. 162-175, 2015. [Project] [Dataset] [pdf]

[8] **Wei-Long Zheng**, Yong-Qi Zhang, Jia-Yi Zhu, and Bao-Liang Lu, Transfer Components between Subjects for EEG-based Emotion Recognition, in Proc. of the sixth International Conference on Affective Computing and Intelligent Interaction (ACII2015), 2015: 917-922. [pdf]

[9] Yifei Lu*, **Wei-Long Zheng***, Binbin Li, and Bao-Liang Lu, Combining Eye Movements and EEG to Enhance Emotion Recognition, in Proc. of the International Joint Conference on Artificial Intelligence (IJCAI'15), 2015:1170-1176. *(*contributed equally as joint first authors)* [pdf]

[10] **Wei-Long Zheng**, Roberto Santana, and Bao-Liang Lu, Comparison of Classification Methods for EEG-based Emotion Recognition, in Proc. of the 2015 World Congress on Medical Physics and Biomedical Engineering (WC'15). IFMBE, 2015: 1184-1187 [pdf]

[11] Jia-Yi Zhu, **Wei-Long Zheng**, and Bao-Liang Lu. Cross-subject and Cross-gender Emotion Classification from EEG, to appear in Proc. of the 2015 World Congress on Medical Physics and Biomedical Engineering (WC'15). IFMBE, 2015: 1188-1191 [pdf]

[12] **Wei-Long Zheng**, Hao-Tian Guo, and Bao-Liang Lu, Revealing Critical Channels and Frequency Bands for EEG-based Emotion Recognition with Deep Belief Network, in Proc. of the 7th International IEEE EMBS Conference on Neural Engineering (IEEE NER'15). IEEE, 2015: 154-157. [pdf]

[13] Xiang-Yu Gao, Yu-Fei Zhang, **Wei-Long Zheng**, and Bao-Liang Lu, Evaluating Driving Fatigue Detection Algorithms Using Eye Tracking Glasses, to appear in Proc. of the 7th International IEEE EMBS Conference on Neural Engineering (IEEE NER'15). IEEE, 2015: 767-770. [pdf]

[14] Yu-Fei Zhang, Xiang-Yu Gao, Jia-Yi Zhu, **Wei-Long Zheng**, and Bao-Liang Lu, A Novel Approach to Driving Fatigue Detection Using Forehead EOG, to appear in Proc. of the 7th International IEEE EMBS Conference on Neural Engineering (IEEE NER'15). IEEE, 2015: 707-710. [pdf]

[15] Yong-Qi Zhang, **Wei-Long Zheng**, and Bao-Liang Lu, Transfer Components between Subjects for EEG-based Driving Fatigue Detection, in Proc. of the 22st International Conference of Neural Information Processing (ICONIP'15), 2015: 61-68.

[16] Yong Peng, **Wei-Long Zheng** and Bao-Liang Lu. An unsupervised discriminative extreme learning machine and its applications to data clustering. Neurocomputing, 2014, DOI: 10.1016/j.neucom.2014.11.097. [pdf]

[17] **Wei-Long Zheng**, Jia-Yi Zhu, Yong Peng, and Bao-Liang Lu. EEG-Based Emotion Classification Using Deep Belief Networks. 2014 IEEE International Conference on Multimedia & Expo (ICME'14). IEEE, 2014: 1-6. [pdf] [poster] [GELM code from Yong Peng]

[18] **Wei-Long Zheng**, Jia-Yi Zhu, and Bao-Liang Lu. Multimodal Emotion Analysis in Response to Multimedia. 2014 IEEE International Conference on Multimedia and Expo Workshops (ICMEW'14). IEEE, 2014: 1-2. [pdf] [demo]

[19] **Wei-Long Zheng**, Bo-Nan Dong, and Bao-Liang Lu. Multimodal Emotion Recognition using EEG and Eye Tracking Data. 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'14). IEEE, 2014: 5040-5043. [pdf] [poster]

[20] Yong Peng, Jia-Yi Zhu, **Wei-Long Zheng**, and Bao-Liang Lu. EEG-Based Emotion Recognition with Manifold Regularized Extreme Learning Machine. 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'14). IEEE, 2014: 974-977. [pdf] [poster]

[21] Jia-Yi Zhu, **Wei-Long Zheng**, Ruo-Nan Duan, Yong Peng and Bao-Liang Lu. EEG-based Emotion Recognition Using Discriminative Graph Regularized Extreme Learning Machine. 2014 International Joint Conference on Neural Networks (IJCNN'14). IEEE, 2014: 525-532. [pdf]

[22] Xuemin Zhu, **Wei-Long Zheng**, Bao-Liang Lu, Xiaoping Chen, Shanguang Chen and Chunhui Wang. EOG-based Drowsiness Detection Using Convolutional Neural Networks. 2014 International Joint Conference on Neural Networks (IJCNN'14). IEEE, 2014: 128-134. [pdf]

[23] Shan-Chun Shen, **Wei-Long Zheng**, and Bao-Liang Lu. Online Object Tracking based on Depth Image with Sparse Coding, the 21st International Conference of Neural Information Processing (ICONIP'14). 2014: 234-241. [pdf]

[24] Simin Zhao, Xiangming Xu, **Weilong Zheng**, Jianwen Ling, Registration of Depth Image and Color Image Based on Harris-SIFT. IEEE 2012 Second International Conference on Electric Information and Control Engineering (ICEICE), 2012. [pdf]

Patents

- "A Method and System of Robot Navigation Based on Color Coding Identification", Second Applicant, Application ID: 201210289058.3. (Issued)
- "A Method of Key Frame Recognition in Video Stream", Second Applicant, Application ID: 201210480917.7.

Media Report

MIT Technology Review "How One Intelligent Machine Learned to Recognize Human Emotions" A View from Emerging Technology from the arXiv, January 23, 2016. [link]

Internship Experience

R&D Engineer Intern at Guangdong Science Center (GDSC) Guangzhou, China (10/2011-04/2012)
The Honor of Excellent Intern *http://gdsc.southcn.com/*

- Project Management and System Design
- Documented the patents.
- Improved analyzing and programming ability, and obtained better understanding of the industry.

Scholarships & Honors

- Excellent Ph.D Student Scholarship of Yang Yuanqing Education Fund, Shanghai Jiao Tong University 2016
- National Scholarship for Graduate Student, Ministry of Education, China 2015
- Excellent Party Member of the School of Electronic, Information and Electrical Engineering 2015
- Graduate Academic Excellence Scholarship of Shanghai Jiao Tong University 2014
- Excellent League Member in Guangdong Province 2008
- National Scholarships Inspirational, Ministry of Education, China 2008-2009
- National Scholarships Inspirational, Ministry of Education, China 2009-2010
- Second-class scholarship in South China University of Technology 2010-2011

Professional Services

- Teaching Assistant for "Neural Network Theory and Applications (F033574)", Shanghai Jiao Tong University. Spring 2015, 2016
- Sub-reviewer: IEEE Trans. Affective Computing, IEEE Trans. Neural Networks and Learning Systems, Journal of Neural Engineering, IEEE Trans. Autonomous Mental Development, ICONIP'15, ICONIP'14, etc.

Language & Skills

- College English Test Band 4: 611
- College English Test Band 6: 502
- National Computer Rank Examination Ⅱ on C++
- National Computer Rank Examination Ⅲ on Computer Network
- Proficient in programming: C/C++, Matlab