

Weihua Chen

Ph.D. Candidate in Pattern Recognition

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Education & Eexperience

- 09/2014 - Present **National Laboratory of Pattern Recognition (NLPR),
Institute of Automation, Chinese Academy of Sciences (CASIA), Beijing, China**
Ph.D. (expected Dec. 2017) in Pattern Recognition, advised by Prof. Kaiqi Huang
Research interests include computer vision and deep learning
- 08/2012 - 08/2014 **NLPR, CASIA, Beijing, China**
Algorithm Engineer in Video Surveillance
- 09/2009 - 07/2012 **Beijing Jiaotong University**
M.Eng. in Singal and Information Processing, advised by Prof. Zhenjiang Miao
- 09/2005 - 07/2009 **Beijing Jiaotong University**
B.Eng. in Computer Science and Technology

Research

- 09/2015 - Present **Person Re-identification** C++, Python, Caffe
Solving person re-identification from both ranking and classification aspects. Firstly we associated two kinds of losses in a multi-task deep network **[accepted to AAAI2017]**. Secondly we designed a quadruplet loss which took advantages of both ranking and classification losses **[accepted to CVPR2017]**.
- 09/2013 - 09/2015 **Multi-Camera Multi-Object Tracking** C++, Matlab, OpenCV
Developing a multi-object tracking algorithm. Firstly we achieved a robust and real-time single object tracking to produce tracklets with high confidences **[accepted to ICCV VOT2013]**. Then we represented tracklets with PMCSHR features and associated tracklets in multiple cameras **[accepted to ICIP2014]**. At last, an equalised graphical model was proposed to solve the imbalance during associating the tracklets in multiple cameras and a new benchmark was introduced for multi-object multi-camera tracking **[accepted to Trans.CSVT2016]**.

Projects & Contests

- 09/2014 - 09/2015 **A Multi-Camera Tracking System (See <https://github.com/cwhgn/EGTracker>)** C++, OpenCV
- Detection: a Ω -shape processor to detect head-shoulders and filter the results from DPM;
- Single object tracking: particle filter based on a combination of features using IPCA;
- Multi-object tracking: global association using an equalized global graphical model, where PMC-SHR was used for feature extraction and MAP was adopted for the graphical model.
- 01/2014 - 08/2014 **The MCT Challenge in ECCV2014 (See <http://mct.idealtest.org>)** Matlab
- Built a multi-camera multi-object tracking dataset called MCT_NLPR;
- Designed the evaluation criterion and implemented the evaluation kit for participants alone;
- Full charge of technical support and checked participants' results under the evaluation kit.
- 09/2013 - 12/2013 **The VOT Challenge in ICCV2013 (See <http://www.votchallenge.net/vot2013>)** C++, OpenCV
- Designed an invariant feature using IPCA to achieve a real-time single object tracking;
- Our tracker achieved 4th/27 in accuracy rank and 7th/27 in final rank under experiment baseline.

- 12/2012 - 08/2013 **A Real-Time Meeting Attendance Detection System for A Hall** C++, OpenCV, MySQL
 - Built a system used for detecting the attendance at a meeting in a 3000-seats hall;
 - Included UI design, data communication and detection algorithm.
- 07/2012 - 11/2012 **Object Detection in Embedded System** C++, OpenCV
 - Improved object detection functions in OpenCV, which are faster for Embedded System;
 - Created some functions, e.g. cvThin(), for practical applications.
- 07/2011 - 06/2012 **Face Exaggeration Project for SIEMENS Company** C++, OpenCV
 - Implemented image deformation on 2D Image;
 - Controlled the deformation via 68 points gained from ASM on human face.

Publications

- [1] **Beyond Triplet Loss: A Deep Quadruplet Network for Person Re-identification**
Weihua Chen, Xiaotang Chen, Jianguo Zhang, Kaiqi Huang
 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), **Spotlight**, 2017
- [2] **A Multi-task Deep Network for Person Re-identification**
Weihua Chen, Xiaotang Chen, Jianguo Zhang, Kaiqi Huang
 The Thirty-First AAAI Conference on Artificial Intelligence (AAAI), **Oral**, 2017.
- [3] **An Equalised Global Graphical Model-Based Approach for Multi-Camera Object Tracking**
Weihua Chen, Lijun Cao, Xiaotang Chen, Kaiqi Huang
 IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2016.
- [4] **A Novel Solution For Multi-Camera Object Tracking**
Weihua Chen, Lijun Cao, Xiaotang Chen, Kaiqi Huang
 IEEE International Conference on Image Processing (ICIP), 2014.
- [5] **An Adaptive Combination of Multiple Features for Robust Tracking in Real Scene**
Weihua Chen, Lijun Cao, Junge Zhang, Kaiqi Huang
 IEEE International Conference on Computer Vision Workshop on Visual Object Tracking Challenge (ICCV VOT), **Oral**, 2013.

Awards

- 07/2006 - 09/2011 **First-class scholarship** 4 times
- 07/2009 **Beijing Outstanding Graduates** Top 0.1%
- 09/2006 **Sony Scholarship for Outstanding Student** Top 0.1%
- 09/2006 **3rd Prize in National Physical Competition (Nationwide)** Undergraduate Group
- 09/2004 **2nd Prize in National Mathematics Competition (Liaoning Province)** Senior High Group
- 09/2004 **2nd Prize in Chinese Physics Olympiad (Nationwide)** Senior High Group

Social Activities

- 09/2007 - 09/2008 **President of University Student Association of Science and Technology of CS Department**
 - Beijing Jiaotong University 3rd College Students Technological Work Competition;
 - Beijing Jiaotong University 2nd ACM Collegiate Programming Contest.
- 09/2006 - 09/2007 **President of Beijing Jiaotong University Chess Association**
 - The 7th Beijing Chess Tournament between Colleges and Universities;
 - Beijing Jiaotong University 10th Chess and Card Competition.

Skills

Programming Languages

- Proficient in C/C++, Python, and Matlab. Experience with Java.

Tools and Frameworks

- Proficient in Caffe and OpenCV.