Yinghao Cai

Contact Information

National Laboratory of Pattern Recognition,
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Research Interests

4th year Ph.D. student with specialization in digital image & video processing, computer vision, pattern recognition and machine learning. My research generally involves in object tracking, object recognition and incorporation of color information for object detection and description. The objective of my research is, specically, given a network of cameras with overlapping or non-overlapping fields of view, to assign a unique ID to moving objects when they are traveling from one camera to another. That is to continuously track moving objects within and across cameras.

Education

Institute of Automation, Chinese Academy of Sciences 09/2003 - Present

- Ph.D. Student in Computer Science — Advisor: Prof. Tieniu Tan
- Dissertation topic: *Motion analysis in a wide area*
- Expected graduation date: December 2008

Central South University, 09/1999 - 07/2003
Bachelor of Computer Science

High School Affiliated to Hunan Normal University, 09/1995 - 07/1999
Special Program of Gifted Student

Publications

- **Yinghao Cai**, Kaiqi Huang and Tieniu Tan, "Matching Tracking Sequences Across Widely Separated Cameras", accepted by IEEE International Conference on Image Processing, 2008. (Oral presentation).
- **Yinghao Cai**, Kaiqi Huang and Tieniu Tan, "Human Appearance Matching Across Multiple Non-overlapping Cameras", accepted by International Conference on Pattern Recognition, 2008. (Oral presentation).
- **Yinghao Cai**, Kaiqi Huang, Yunhong Wang and Tieniu Tan, "Context Enhancement of Nighttime Surveillance by Image Fusion", in International Conference on Pattern Recognition, vol.1, pp.980-983, 2006. (Oral presentation).
- **Yinghao Cai**, Wei Chen, Kaiqi Huang, Tieniu Tan, "Continuously Tracking Objects Across Multiple Widely Separated Cameras", in The 8th Asian Conference on Computer Vision, vol.1, pp.843-852, 2007.
- Zhaoxiang Zhang, **Yinghao Cai**, Kaiqi Huang, Tieniu Tan, "Real-Time Moving Object Classification with Automatic Scene Division," in IEEE International Conference on Image Processing, vol.5, pp.149-152, 2007. (Oral presentation).

Patents

- Tieniu Tan, Kaiqi Huang and **Yinghao Cai**, "An Approach to Nighttime Surveillance Based on Information Fusion", 200710175669.4, patent pending in China.

Publications in undergraduate

- Lasheng Yu and **Yinghao Cai**, "Study on Decision Mechanism of Agents Based on the Real Environment", MINI-MICRO SYSTEMS, vol.26, No.6, pp.1033-1036, 2005, (In Chinese).
- Lasheng Yu and **Yinghao Cai**, "Studies on Decision Mechanism of Agents Based on Real-time Environment", COMPUTER ENGINEERING, vol.31 No.7, pp.24-26, 2005, (In Chinese).

Selected Honors and Activities

- Journal reviewer of Image and Vision Computing.
- Attend the International Conference of Pattern Recognition, 2006, Hongkong, China.
- Attend the Asian Conference on Computer Vision, 2007, Tokyo, Japan.
- Organizing committee member, the 2nd Joint IEEE Workshop on Visual Surveillance and Performance Evaluation of Tracking and Surveillance (VS-PETS) in conjunction with ICCV, Beijing, 2005.
- Excellent graduate student, Central South University, 2003.
- Outstanding Student Fellowship, Central South University, 1999-2003.

Research Experience

Research Assistant, National Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences, Beijing, China 09/2003 – present

Project: Key problems for night visual surveillance 07/2005 - 03/2006

- Sources of Funding: National Science Foundation of China.
- Major work: Devised and implemented three modules: image enhancement, image fusion and motion detection in video sequences of nighttime.
- Involved in both research and development of this project

Project: Digital image content Understanding 09/2004 - present

- Sources of Funding: National 973 program, National Science Foundation of China.
- Major work: Devised and implemented two modules: Inter-camera tracking and Intra-camera tracking.
- Conduct in-depth research on appearance representation of moving objects and data association across cameras
- Involved in both research and development of this project

Computer Skills

- Proficient in C/C++, Matlab, OpenCV.
- Familiar with Windows/Linux operating systems.
- Experienced with IPL, DirectX.

English

- TOEFL: 660 (L:64; G:67 R:67), TWE: 4.5, taken at May 2002.
- English teacher at College of Foreign Languages of Hunan University, 2003.

Contacts for references:

- **Prof. Tieniu Tan**
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  Director, National Lab of Pattern Recognition (NLPR), Beijing, P.R.China.
- **Prof. Weiming Hu**
  Email: wmhu@nlpr.ia.ac.cn
  National Lab of Pattern Recognition (NLPR), Beijing, P.R.China.
- **Prof. Yunhong Wang**
  Email: yhwang@buaa.edu.cn
  Department of Computer Science and Technology, Beihang University (Beijing University of Aeronautics & Astronautics), Beijing, P.R.China.
- **Associate Prof. Kaiqi Huang**
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  National Lab of Pattern Recognition (NLPR), Beijing, P.R.China.