JIA-BIN HUANG

5F., No.50, Lane 394, Longjiang Rd., Jhongshan District, Taipei City 104, Taiwan (R.O.C.)
Phone: +886-2-2501-6917; Mobile: +886-919-548-420
E-mail: jbhuang0604@gmail.com

Area of Interests

- Computer Vision and Pattern Recognition, Machine Learning, Signal Processing, Multimedia Applications

Education

- **National Chiao Tung University (NCTU), Hsin Chu, Taiwan** Sept. 2002 to June 2006
  - Bachelor of Science in Electronics Engineering (EE)
  - GPA Overall: 3.97/4.00, 163 credits
  - GPA Major: 3.96/4.00, 120 credits

Standardized Test Scores

- GRE: Verbal: 690 (96%), Quantitative:800 (94%), Analytical Writing: 3.5 (20%) Sept. 2006
- TOEFL: iBT Total 105 (Reading:29, Listening:29, Speaking:22, Writing:25) Nov. 2008

Research Experience

- **Object Detection, Tracking, and Recognition** Jan. 2009 to present
  - Aim to detect, track, and recognize object in an intergraded way. (in progress)
  - Advisor: Prof. Ming-Hsuan Yang
- **Visual Surveillance** June. 2008 to present
  - *Moving Cast Shadow Detection*: Propose and implement an effective shadow detection algorithm for video surveillance. Experimental results on various scene types show that our algorithm outperforms the state-of-the-art approaches. (published: [C2] [C4] [C5])
  - *Illumination-Invariant Background Subtraction*: Develop an illumination-Invariant background subtraction method using one view. (in progress)
  - *Bilayer Video Segmentation*: Developed and implemented a novel approach for real-time bilayer video segmentation in monocular video sequences. The proposed approach can deal with dramatic foreground motion and non-static background as well as sudden illumination changes. (in progress)
  - Advisor: Prof. Chu-Song Chen
- **Information Preserving Color Transformation for the Colorblind** Feb. 2006 to Oct. 2006, June. 2008 to July. 2008
  - Investigated, developed, and implemented an information preserving color transformation for color deficient people. (published: [C8], [J1])
  - Proposed an efficient recoloring method for enhancing color representation for people with color vision deficiency. (published: [C3])
  - Proposed a general framework for image recolorization. (published: [C1])
  - Advisor: Sheng-Jyh Wang, Chu-Song Chen
- **Architecture Design of Scalable Video Decoder** July. 2005 to Feb. 2006
  - Studied the codec of scalable video coding (SVC) and proposed a display order oriented hardware architecture to reduce memory requirement and time latency. (published: [C7])
  - Implemented and imported the software of motion compensated temporal filtering (MCTF) in SVC on the reconfigurable processor. Design specific hardware to accelerate the program to reach real-time requirement. (1st winner of the Tensilica Xtensa Processor University Contest)
  - Advisor: Prof. Tian-Sheuan Chang

Working and Teaching Experience

- Research Assistant, Institute of Information Science, Academia Sinica Feb. 2008 to Present
- Second Lieutenant, Platoon Leader, R.O.C. Army, Taiwan Oct. 2006 to Nov. 2007
- Undergraduate Research Assistant, NCTU Feb. 2005 to Sept. 2006

Honor and Distinctions

- Best Paper Award Runner Up in 19th, and 21st Computer Vision, Graphics, and Image Processing Conference Aug. 2006, 2008
  –A domestic conference with more than 200 papers.
- The Third Place of 15th NCTU Spring Creativity Competition Mar. 2006
  –Cash prize, NTD 10,000
- First Prize in Tensilica Xtensa Reconfigurable Processor University Contest Oct. 2005
  –Cash prize, NTD 100,000; Designed specific hardware to accelerate the motion compensated temporal filter (MCTF) on Xtensa reconfigurable processor to meet real-time requirement
- National Science Council Undergraduate Research Fellowship Sep. 2005
  –National Science Council in Taiwan is equal to National Science Foundation in United States
- NCTU Outstanding Freshman Fellowship Sept. 2002
  –Four years tuition waiver for outstanding high school graduates.

Publications

- **Journal Papers**
  - [J1] Jia-Bin Huang, Yu-Cheng Tzeng, Se-In Wu, and Sheng-Jyh Wang, "**Information Preserving Color Transformation for Protanopia and Deuteranopia**," *IEEE Signal Processing Letters, Vol. 14 No.10, pp. 711-714, October 2007.*
- **Conference Papers**
  - [C1] Jia-Bin Huang, Chiu-Song Chen, Tzu-Cheng Jen, and Sheng-Jyh Wang, "**Image Recolorization for the Colorblind**," *in Int'l Conf. on Acoustics, Speech, and Signal Processing, 2009.*
  - [C2] Jia-Bin Huang, and Chiu-Song Chen, "**A Physical Approach to Moving Cast Shadow Detection**," *in Int'l Conf. on Acoustics, Speech, and Signal Processing, 2009. (Oral)*
  - [C3] Jia-Bin Huang, Sih-Ying Wu, and Chu-Song Chen, "**Enhancing Color Representation for the Color Vision Impaired**," *in Int'l Workshop on Computer Vision Applications for the Visually Impaired, in conjunction with European Conference on Computer Vision, Marseille, France, Oct. 18, 2008 (Oral)*
  - [C4] Jia-Bin Huang, and Chu-Song Chen, "**Learning Cast Shadow for Foreground Detection**," *in Int'l Workshop on Visual Surveillance, in conjunction with European Conference on Computer Vision, Marseille, France, Oct. 17, 2008*
  - [C5] Jia-Bin Huang, and Chu-Song Chen, "**Markovian Framework for Foreground and Shadow Detection**," *in Proc. Computer Vision, Graphics, and Image Processing, Taiwan, Aug. 2008 (Oral)*
  - [C6] Jia-Bin Huang, Sih-Ying Wu, and Chu-Song Chen, "**Enhancing Color Representation for the Color Vision Deficient**," *in Proc. Computer Vision, Graphics, and Image Processing, Taiwan, Aug. 2008. (Oral) (Best paper award runner up)*
  - [C7] Jia-Bin Huang, Yu-Kun Lin, and Tian-Sheuan Chang, "**A Display Order Oriented Scalable Video Decoder**," *in Proc. IEEE Asia Pacific Conference on Circuits and Systems, Singapore, Dec. 4-7, 2006. (Oral)*
  - [C8] Jia-Bin Huang, Yu-Cheng Tzeng, Se-In Wu, and Sheng-Jyh Wang, "**Information Preserving Color Transformation for Protanopia and Deuteranopia**," *in Proc. Computer Vision, Graphics, and Image Processing (CVGIP), Taiwan, Aug. 2006. (Oral) (Best paper award runner up)*