

# Fengjun (Felix) Lv

# Curriculum Vitae

---

NEC Laboratories America  
10080 North Wolfe Road, Suite SW3-350  
Cupertino, CA 95014

(408) 863-6019 (O)  
(408) 931-0873 (H)  
[flv@sv.nec-labs.com](mailto:flv@sv.nec-labs.com)

---

## EDUCATION

---

University of Southern California, Los Angeles, CA  
Ph.D. in Computer Science (GPA 4.0) 05/2007

Tsinghua University, Beijing, China  
M.S. in Computer Science 07/2000  
B.E. in Computer Science 07/1998

---

## EMPLOYMENT

---

NEC Laboratories America, Cupertino, CA  
Research Staff Member 04/2007 - present

Institute for Robotics and Intelligent System, University of Southern California  
Research Assistant (advisor: Prof. Ramakant Nevatia) 09/2000 - 04/2007

Computer Science Department, University of Southern California  
Teaching Assistant 09/2000 - 05/2001

National Laboratory of Intelligent Technology and Systems, Tsinghua University  
Research Assistant (advisor: Prof. Haizhou Ai) 09/1997 - 07/2000

Computer Science Department, Tsinghua University  
Teaching Assistant 09/1998 - 07/1999

Imaging Lab, Tsinghua Unisplendour Inc.  
Summer Research Intern (mentor: Dr. Daohong Kan) 05/1996 - 10/1996

---

## RESEARCH INTERESTS

---

- ♦ Computer Vision System for Surveillance, Human Computer Interaction and Entertainment
- ♦ Large-scale Image Search
- ♦ Object Detection and Recognition
- ♦ Multi-object Tracking
- ♦ Human Action and Event Recognition

---

## HONORS AND AWARDS

---

- ◆ Received Winner Award on PASCAL visual object recognition challenge. Our video analysis team outperforms other 32 teams from all over the world and we won 18 categories (out of 20 categories). Our average score is 4% higher than the runner-up's, 2009
- ◆ Received NEC Lab's Seeds Award (together with Kai Yu and Jinjun Wang), 2009
- ◆ Received NEC Lab's FY2007 Technology Commercialization Award in recognition of key contributions to the commercialization of human tracking and counting algorithm. The technology is incorporated into two NEC products: FieldAnalyst and Kaoato Surveillance Software by NEC Soft Ltd. (NES) (together with Yihong Gong and Wei Xu), 2008
- ◆ Received Certificate of Appreciation from NES President Norihiko Kunishima for research contribution to NES's FieldAnalyst product (together with Yihong Gong and Wei Xu), 2008
- ◆ Nominated for inclusion in the 2009 Edition of Who's Who In America, 2008
- ◆ Full graduate assistantship, Institute for Robotics and Intelligent System, USC, 2000-2007
- ◆ Master Top Graduate Student, Computer Science Dept., USC, 2004
- ◆ Excellent student scholarship, Zhong Shimo scholarship, Tsinghua University, 1996-1998

---

## PATENTS AND INVENTIONS

---

- ◆ Efficient Multi-Hypothesis Multi-Human 3D Tracking in Crowded Scenes (Principal Inventor), U.S. patent pending
- ◆ Automated Single Viewpoint Human Action Recognition by Matching Linked Sequences of Key Poses, U.S. patent pending
- ◆ Robust Human Action Detection System, NEC Labs America, Invention Record#8072, 2008
- ◆ Efficient Multi Hypothesis 3-D Human Tracking in Crowded Scenes, NEC Labs America, Invention Record#7065, 2007
- ◆ Human Action Detection in Crowded Scenes, NEC Labs America, Invention Record#7064, 2007
- ◆ View Invariant Human Action Recognition and Segmentation System, Invention Disclosure, USC, 2007
- ◆ Human Action Recognition and Segmentation System, Invention Disclosure, USC, 2006

---

## PROJECTS

---

- ◆ Image object classification and detection, 2009
- ◆ Recognition of human attributes and behaviors, NEC Labs, 2007-2008
- ◆ Multiple human tracking and counting in complex scenarios, NEC Labs, 2007-2008
- ◆ Intelligent video sensors for advanced retail solution, NEC Labs, 2007-2008
- ◆ Flexible framework for advanced video and image processing, NEC Labs, 2007-2009
- ◆ View-invariant human action recognition from a single video sequence, USC, 2006-2007
- ◆ Human event detection using Bayesian inference, USC, 2006

- ◆ 3-D human action recognition, USC, 2005-2006
- ◆ Human tracking and activities labeling from a video sequence, USC, 2003-2004
- ◆ Flexible camera calibration using human motion, USC, 2001-2002
- ◆ Multiple human segmentation and tracking in complex situations, USC, 2000-2001
- ◆ Human face detection based on skin color and principal component analysis, Tsinghua University, 1999-2000
- ◆ Motion based video surveillance system, Tsinghua University, 1997-1999
- ◆ Core image processing modules for a scanner software system, Imaging Lab, Tsinghua Unisplendour Inc., 1996

---

## PUBLICATIONS

---

### Books

- ◆ F. Lv, "[Introduction to Image Processing: Algorithms and Programming](#)" (in Chinese), Tsinghua University Press, ISBN 7-302-03523-7/TP.1928, 1999. (Reference book used in the Image Processing course of Computer Science Department, Tsinghua University)

### Dissertation

- ◆ F. Lv, "Model Based View-Invariant Human Action Recognition and Segmentation", PhD dissertation, University of Southern California, 05/2007

### Journal Papers

- ◆ F. Lv, T. Zhao, R. Nevatia, "Camera Calibration from Video of a Walking Human", IEEE Trans. on Pattern Analysis and Machine Intelligence (PAMI), vol. 28, no. 9, pp. 1513-1518, Sept., 2006. (Featured article of September 2006 issue)

### Conference Papers

- ◆ Y. Hu, L. Cao, F. Lv, S. Yan, Y. Gong, T. S. Huang, "Action Detection in Complex Scenes with Spatial and Temporal Ambiguities", IEEE Conf. on Computer Vision (ICCV), 2009. (oral)
- ◆ M. Yang, F. Lv, W. Xu, Y. Gong, "Detection Driven Adaptive Multi-cue Integration for Multiple Human Tracking", IEEE Conf. on Computer Vision (ICCV), 2009.
- ◆ M. Yang, F. Lv, W. Xu, K. Yu, Y. Gong, "Human Action Detection by Boosting Efficient Motion Features", IEEE Workshop on Video-oriented Object and Event Classification, in Conjunction with ICCV (VOEC\_ICCV), 2009.
- ◆ F. Lv, R. Nevatia, "Single View Human Action Recognition using Key Pose Matching and Viterbi Path Searching", IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), 2007.
- ◆ F. Lv, R. Nevatia, "Recognition and Segmentation of 3-D Human Action Using HMM and Multi-Class AdaBoost", 9<sup>th</sup> European Conf. on Computer Vision (ECCV), vol. 4, pp. 359-372, 2006.
- ◆ F. Lv, X. Song, B. Wu, V. Singh, R. Nevatia, "Left-Luggage Detection using Bayesian Inference", 9<sup>th</sup> International Workshop on Performance Evaluation of Tracking and Surveillance (PETS-CVPR), 2006.
- ◆ F. Lv, R. Nevatia, M. Lee, "3-D Human Action Recognition Using Spatio-Temporal Motion Templates", ICCV Workshop on Human-Computer Interaction (HCI-ICCV), Lecture Notes in Computer Science, Vol. 3766, pp. 120-130, 2005.

- ♦ F. Lv, J. Kang, R. Nevatia, I. Cohen, G. Medioni, “Automatic Tracking and Labeling of Human Activities in a Video Sequence”, 6<sup>th</sup> International Workshop on Performance Evaluation of Tracking and Surveillance (PETS-ECCV), 2004.
- ♦ F. Lv, T. Zhao, R. Nevatia, “Self-Calibration of a Camera from Video of a Walking Human”, 16<sup>th</sup> International Conf. on Pattern Recognition (ICPR), pp. 562-567, 2002. (oral)
- ♦ T. Zhao, R. Nevatia and F. Lv, “Segmentation and Tracking of Multiple Humans in Complex Situations”, IEEE Conf. on Computer Vision and Pattern Recognition (CVPR), vol.2, pp.194-201, 2001. (oral)
- ♦ F. Lv, H. Ai, L. Liang and G. Xu, “Face Detection Based on Skin Color and Template Matching”, 1<sup>st</sup> International Conf. on Image and Graphics (ICIG), 2000.

---

## PROFESSIONAL ACTIVITIES

---

- ♦ Reviewer for Machine Vision and Applications Journal, 2007, 2008
- ♦ Reviewer for Journal of Pattern Recognition, 2007, 2008
- ♦ Reviewer for Journal of Pattern Recognition Letters, 2007, 2008
- ♦ Reviewer for IEEE International Conf. on Advanced Video and Signal based Surveillance (AVSS), 2007
- ♦ Reviewer for International Conf. on Image Analysis and Processing (ICIAP), 2007

---

## PROFESSIONAL ASSOCIATIONS

---

- ♦ Full Member of Sigma Xi, The Scientific Research Society, 2007 – present
- ♦ Member of Institute of Electrical and Electronics Engineers (IEEE), 2002 – present
- ♦ Member of Association for Computing Machinery (ACM), 2007 – present

---

## TEACHING EXPERIENCE

---

Teaching Assistant in the following courses:

- ♦ Computer Vision (graduate), Computer Science Dept., USC, 2001
- ♦ Advanced Artificial Intelligence, (graduate), Computer Science Dept., USC, 2000
- ♦ Artificial Intelligence (undergraduate), Computer Science Dept., Tsinghua University, 1999

---

## Miscellaneous

---

- ♦ Immigration status: U.S. permanent resident