

CURRICULUM VITAE

Unsang Park

WORK

3115 Engineering Building
Computer Science and Engineering
Michigan State University,
East Lansing, MI 48824
517-432-3308, parkunsa@cse.msu.edu

HOME

5105 Madison Ave. #A2
Okemos, MI 48864

OBJECTIVE

- To obtain a research position in the areas of Pattern Recognition, Image Processing, Computer Vision, or Machine Learning.

EDUCATION

- **PhD** in Computer Science and Engineering, August 2009
Michigan State University
- **MS** in Computer Science and Engineering, May 2004
Michigan State University
- **MS** in Materials Engineering, August 2000
Hanyang University, Seoul
- **BS** in Materials Engineering, February 1998
Hanyang University, Seoul

RELEVANT COURSE WORK

- Machine Learning
- Pattern Recognition and Analysis
- Design and Theory of Algorithms
- Advanced Database Systems
- Medical Imaging
- Biometrics
- Computer Vision
- Advanced Operating Systems
- Advanced Computer Architecture
- Computability and Languages
- Theory of Probability and Statistics
- Modern Statistical Methods

RESEARCH EXPERIENCE

- Periocular biometric
- Face aging modeling
- Object recognition and image retrieval
- 3D Face reconstruction from video
- Face recognition at a distance using PTZ camera
- Face recognition in video
- 3D face verification
- Video surveillance
- Real-time image processing for non-destructive evaluation (NDE)
- DSP Programming for real-time image processing

EMPLOYMENT

- Scientist, October 2011 ~
Raytheon BBN Technologies
10 Moulton Street, Cambridge, MA
- Research Assistant Professor, September 2010 ~ July 2011
Dept. of Brain and Cognitive Engineering, Korea University, Seoul

- Post Doc., March 2009 ~ September 2011
Dept. of Computer Science and Engineering, Michigan State University

INTERNSHIP

- Exploratory Computer Vision Group
IBM T. J. Watson Research Center, Hawthorne, New York
September 4 ~ December 31, 2008
Development of an Intelligent Headlight Control System
- Exploratory Computer Vision Group
IBM T. J. Watson Research Center, Hawthorne, New York
May 14 ~ December 28, 2007
Development of a General Purpose Object Verification System
- Knowledge Science Laboratory
Advanced Telecommunications Research (ATR) Institute, Kyoto, Japan
October 31 ~ December 30, 2005
Video Understanding for Environmental Recognition Using Multipoint Network Camera
- Proximex Corporation, Sunnyvale, CA
May 16 ~ August 15, 2005
Development of a Commercial Grade Biometric Authentication System

JOURNAL PUBLICATIONS

1. H.-C. Choi, **U. Park**, A. K. Jain, and S.-W. Lee, "Face Tracking and Recognition at a Distance: A Coaxial & Concentric PTZ Camera System," IEEE Transactions on Circuits and Systems for Video Technology (TCSVT), 2011. (Under Review)
2. A. K. Jain, B. Klare, and **U. Park**, "Face Matching & Retrieval: Applications in Forensics," IEEE Multimedia, 2011. (To Appear)
3. Y.-B. Lee, **U. Park**, A. K. Jain, and S.-W. Lee, "Pill-ID: Matching and Retrieval of Drug Pill Images," Pattern Recognition Letters (PRL), 2011. (To Appear)
4. Z. Li, **U. Park**, and Anil K. Jain, "A Discriminative Model for Age Invariant Face Recognition," IEEE Transactions on Information Forensics and Security (TIFS), 6(3), 2011. (To Appear)
5. **U. Park**, R. Jillela, A. Ross, and A. K. Jain, "Periocular Biometrics in the Visible Spectrum," IEEE Transactions on Information Forensics and Security (TIFS), 6(1): 96-106, 2011.
6. K. Niinuma, **U. Park**, and A. K. Jain, "Soft Biometric Traits For Continuous User Authentication," IEEE Transactions on Information Forensics and Security (TIFS), 5(4): 771-780, 2010.
7. **U. Park** and A. K. Jain, "Face Matching and Retrieval Using Soft Biometrics," IEEE Transactions on Information Forensics and Security (TIFS), 5(3): 406-415, 2010.
8. **U. Park**, Y. Tong, and A. K. Jain, "Age Invariant Face Recognition," IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI), 32(5): 947-954, 2010.
9. **U. Park**, L. Udpa, and G. C. Stockman, "Motion-based Filtering of Magneto-Optic Imagers," Image and Vision Computing, 22(3): 243-249, 2004.

CONFERENCE PROCEEDINGS

1. H. Maeng, H.-C. Choi, **U. Park**, A. K. Jain, and S.-W. Lee, "NFRAD: Near-Infrared Face Recognition at a Distance," International Joint Conference on Biometrics (IJCB), Washington D.C., October 2011. (To Appear)
2. A. K. Jain, B. Klare, and **U. Park**, "Face Recognition: Some Challenges in Forensics," Proc. of IEEE Int'l Conf. on Automatic Face and Gesture Recognition, pp. 726-733, Santa Barbara, CA, March 2011.

3. **U. Park**, C. Otto, and S. Pankanti, "Cart Auditor: A Compliance and Training Tool for Cashiers at Checkout," Proc. of Pacific-Rim Symposium on Image and Video Technology (PSIVT), pp. 151-155, Singapore, November 2010.
4. H.-C. Choi, **U. Park**, and A. K. Jain, "PTZ Camera Assisted Face Acquisition, Tracking & Recognition," Proc. of Biometrics: Theory, Applications and Systems (BTAS), pp. 1-6, Washington D.C., September 2010.
5. Y.-B. Lee, **U. Park**, and A. K. Jain, "PILL-ID Matching and Retrieval of Drug Pill Imprint Images," Proc. of Int'l Conf. on Pattern Recognition (ICPR), pp. 2632-2635, Turkey, August 2010. (Best Scientific Paper Award)
6. A. K. Jain and **U. Park**, "Facial Marks: Soft Biometric For Face Recognition," Proc. of Int'l Conf. on Image Processing (ICIP), pp. 37-40, Egypt, November 2009.
7. **U. Park**, A. K. Jain, and A. Ross, "Periocular Biometrics in the Visible Spectrum: A Feasibility Study," Proc. of Biometrics: Theory, Applications and Systems (BTAS), pp. 153-158, Washington D.C., September 2009.
8. **U. Park**, Y. Tong, and A. K. Jain, "Face Recognition with Temporal Invariance: A 3D Aging Model," Proc. of IEEE Int'l Conf. on Automatic Face and Gesture Recognition, pp. 1-7, Amsterdam, Netherlands, September 2008.
9. **U. Park**, S. Pankanti, and A. K. Jain, "Fingerprint Verification Using SIFT Features," Proc. of SPIE Defense and Security Symposium, pp. 69440K-69440K-9, Orlando, Florida, April 2008.
10. R. Bobbitt, J. H. Connell, M. Flickner, N. Haas, A. Hampapur, D. Harris, C. Kurtz, B. Lloyd, C. Otto, S. Pankanti, **U. Park**, and Jason Payne, "Retail Vision-Based Self-checkout - Exploring Real Time Purpose General Vision System," Proc. of Int'l Conf. on Computer Vision and Applications (VISAPP), pp. 13-14, Portugal, January, 2008.
11. **U. Park** and A.K. Jain, "3D Model-Based Face Recognition in Video," Proc. of IEEE Int'l Conf. on Biometrics, (ICB), pp. 1085-1094, Seoul, South Korea, August, 2007.
12. **U. Park**, A.K. Jain, and A. Ross, "Face Recognition in Video: Adaptive Fusion of Multiple Matchers," Proc. of IEEE Comp. Soc. Workshop on Biometrics, CVPR, pp. 1-8, Minnesota, June, 2007.
13. **U. Park**, A.K. Jain, I. Kitahara, K. Kogure, and N. Hagita, "ViSE: Visual Search Engine Using Multiple Networked Cameras," Proc. of Int'l Conf. on Pattern Recognition (ICPR), Vol. 3, pp. 1204-1207, Hong Kong, August, 2006.
14. **U. Park** and A.K. Jain, "3D Face Reconstruction from Stereo Video," Proc. of Int'l Workshop on Video Processing for Security (VP4S-06) in Third Canadian Conf. on Computer and Robot Vision (CRV'06), June 7-9, Quebec City, Canada, 2006.
15. **U. Park**, H. Chen, and A. K. Jain. "3D Model-Assisted Face Recognition in Video," Proc. of Int'l Workshop on Face Processing in Video, in AI/GI/CRV'05, pp. 322-329, Victoria, Canada, May 2005.
16. **U. Park**, F. Yuan, L. Udpa, P. Ramuhalli, W. Shih, and G. C. Stockman, "Automated Rivet Inspection for Aging Aircraft with Magneto-optic Imager," Proc. of Int'l Workshop on Electromagnetic Nondestructive Evaluation, pp. 185-194, East Lansing, Michigan, 2005.
17. A. K. Jain, K. Nandakumar, X. Lu, and **U. Park**, "Integrating Faces, Fingerprints, and Soft Biometric Traits for User Recognition," Proc. of Biometric Authentication Workshop, in ECCV, LNCS 3087, pp. 259-269, Prague, May 2004.
18. **U. Park**, L. Udpa, G. C. Stockman, B. Shih, and J. Fitzpatrick, "Real-time Implementation of Motion-based Filtering in Magneto-Optic Imager," Proc. of Review of Progress in Quantitative Nondestructive Evaluation, pp. 702-712, Green Bay, Wisconsin, July 2003.
19. P. Ramuhalli, F. Yuan, **U. Park**, Jason Slade, and Lalita Udpa, "Enhancement of magneto-optic images," Proc. of Int'l Workshop on Electromagnetic Nondestructive Evaluation, pp. 199-205, Saclay, France, May, 2003.

20. P. Ramuhalli, J. Slade, **U. Park**, L. Xuan, and L. Udpa, "Modeling and Signal Processing of Magneto Optic Images for Aviation Applications," Proc. of Int'l Conf. on Smart Materials, Structures and Systems, Published by SPIE, Bangalore, India, 2002.

BOOK CHAPTERS/ARTICLES

1. **U. Park** and Anil K. Jain, "Face Aging Modeling," Handbook of Face Recognition, 2011. (To Appear)
2. **U. Park** and Anil K. Jain, "Age-invariant Face Recognition," Biometrics Council Newsletter, 2011. (To Appear)

PATENTS

1. Apparatus and Method for Monitoring, **U. Park**, H.-C. Choi, and A. K. Jain, Filed (Korea), 2011.
2. Apparatus and Method for Monitoring Using Beam Splitter, H.-C. Choi, **U. Park**, and A. K. Jain, Filed (Korea), 2011.
3. Non-scan Detect System for a Retail Checkout Station, R. Bobbitt, M. Flickner, A. Hampapur, C. Otto, S. Pankanti, **U. Park**, A. Yanagawa, and Y. Zhai, US 7,503,490, 2009.
4. Method for Detecting a Non-scan at a Retail Checkout Station, R. Bobbitt, M. Flickner, A. Hampapur, C. Otto, S. Pankanti, **U. Park**, A. Yanagawa, and Y. Zhai, US 7,448,542, 2008.

COMPUTER SKILLS

- C/C++, Visual C++, MATLAB, Java, FORTRAN, Prolog, Haskell, and Perl
- OpenCV and OpenGL
- L-1 FaceIt and Cognitec FaceVACS face recognition SDK
- Minolta Vivid 910 SDK, Minolta Polygon Editing Tools, and Raindrop Geomagic Studio
- DSP programming
- Windows, Linux, and Unix platform

REFERENCES

- Provided upon request.