

Hankyu Moon

CONTACT INFORMATION

E-mail: hankyu@cfar.umd.edu
WWW:
www.cfar.umd.edu/~hankyu

SUMMARY

Scientist specialized in Computer Vision / Image Processing / Machine Learning

PROFESSIONAL EXPERIENCE

Advanced Interfaces, Inc., State College, PA USA

Senior Researcher

September, 2004 - present

NEC Labs America, Princeton, NJ USA

Research Staff Member

March, 2002 - June, 2004

- NEC 3D-2D face recognition project
- NEC face verification for passive login project: Designed a novel approach to represent human face using sparse 3D representation for the purpose of locating and estimating pose in natural images. Developed a facial pose estimation algorithm using the sparse representation and coarse coding; patent has been filed.
- A novel image space representation for estimation/classification: Learn the image space metric instead of the mapping. Successfully applied to facial pose estimation problem.
- Current research: Identification and estimation of independent scene components.

University of Maryland, College Park, MD USA

Research Scientist

January - March, 2002

- Human body tracking and motion estimation in video

Graduate research assistant

July, 1996 - December, 2001

- Automatic target recognition using laser radar
- Analysis and performance evaluation of UMD vehicle detection algorithm
- Design of novel shape detection algorithm using a deformable shape operator
- Design of human facial feature detection algorithm by successfully applying the deformable shape operator
- Simultaneous human head and iris tracking in video
- Human body tracking and motion estimation in video

EDUCATION

University of Maryland, College Park, Maryland USA

Department of Electrical and Computer Engineering

Ph.D. December 2001

- Dissertation Topic: "Shape-encoded particle filtering for object detection and tracking"
- Adviser: Rama Chellappa

University of Maryland, College Park, Maryland USA

Department of Mathematics

Ph.D Program, Mathematics, 1994-1996

Seoul National University, Seoul, South Korea

Department of Mathematics

M.S. Candidate, Mathematics, 1993

Seoul National University, Seoul, South Korea

Department of Mathematics Education

B.A., Mathematics Education, 1990

PUBLICATIONS

H. Moon, R. Chellappa, and A. Rosenfeld, "Optimal Shape Detection," IEEE Intl. Conf. on Image Processing 2000.

H. Moon, R. Chellappa, and A. Rosenfeld, "3D Object Tracking Using Shape-Encoded Particle Propagation," IEEE Intl. Conf. on Computer Vision 2001.

H. Moon, R. Chellappa, and A. Rosenfeld, "Tracking of Human Activities Using Shape-Encoded Particle Propagation," IEEE Intl. Conf. on Image Processing 2001.

H. Moon, R. Chellappa, and A. Rosenfeld, "Performance Analysis of a Simple Vehicle Detection Algorithm," Image and Vision Computing, 2002.

H. Moon, R. Chellappa, and A. Rosenfeld, "Optimal edge-based shape detection," IEEE Transaction on Image Processing, Vol. 11, pp. 1209-1227, 2002.

T. Yamamoto, H. Moon, and R. Chellappa, "Shape and Motion Driven Particle Filtering for Human Body Tracking," , IEEE Transaction on Image Processing, Submitted.

H. Moon and R. Chellappa, "3D Shape-Encoded Particle Filter for Object Tracking and its Application to Human Body Tracking," IEEE Transaction on Image Processing, Under review.

H. Moon and M. Miller, "Estimating facial pose from sparse representation", IEEE Intl. Conf. on Image Processing 2004, Accepted for presentation.

KNOWLEDGE/SKILLS

- Mathematical/statistical analysis: expert level, 16 years
- Signal/image processing: expert level, 8 years
- Artificial intelligence/machine learning: expert level, 8 years
- Programming in C/C++: intermediate level, 8 years
- Unix (Solaris, Linux): intermediate level, 8 years
- Matlab: intermediate level, 9 years

REFERENCES

Rama Chellappa

Director

Center for Automation Research

University of Maryland

Professor

Dept. of Electrical and Computer Engineering

University of Maryland

(301) 405-3656
rama@cfar.umd.edu

Rajeev Sharma
Founder, Chairman/CEO
Advanced Interfaces, Inc.
403 South Allen Street, Suite #104
State College, PA 16801

Associate Professor
Dept. of Computer Science and Engineering
The Pennsylvania State University
University Park, PA 16802

(814) 867-8977
rsharma@advancedinterfaces.com

Peter Blicher
Senior Research Staff Member
NEC Labs America
4 Independence Way
Princeton, NJ 08540

(609) 951-2716
blicher@nec-labs.com

Matt Miller
Research Staff Member
NEC Labs America
4 Independence Way
Princeton, NJ 08540

(609) 951-2783
mlm@nec-labs.com