SATOSHI IKEHATA

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INTERESTS Computer Vision (Especially about the 3-D computer vision), Image Processing, Machine Learning, Human Cognition and Perception

WORK - Assistant Professor in National Institute of Informatics. April 2017 - present.
- Postdoctoral Researcher in Washington University in St. Louis. April 2014 - November 2017 (Superviser: Dr. Yasutaka Furukawa).

EDUCATION Ph.D Candidate in Information Science and Technology, University of Tokyo. April 2011 - May 17 2014
Thesis: "Photometric Stereo Using Constrained Regression"
Concentrations: Photometric Stereo, Depth-Map Upsampling
Supervisor: Dr. Kiyoharu Aizawa
Key Projects:
Photometric Stereo

- Photometric stereo is an inverse problem of recovering surface normals of a scene from images captured under different lightings. When the reflectance of a scene obeys a Lambertian assumption, there is a simple algorithm capable of recovering the surface normals and albedos of the scene. However, the image formation process of the real world scene involves more complex interactions among shape, reflectance and illumination, making the problem more difficult. The goal of this project is to solve the photometric stereo problem in the presence of various non-Lambertian effects such as shadows, specular highlights, and sensor noises.

Depth-Map Upsampling

- Active depth video sensors such as Time-of-Flight (ToF) cameras and Kinect sensor have recently become a popular option to acquire 3-D depth maps, which are practically used for image-based rendering, scene segmentation, motion tracking and so on. However, those sensors provide a low-resolution depth map, which is also often contaminated by missing pixels and sensor noise. The goal of this project is to improve the quality and detail of a depth map using a high-resolution color image for leveraging the correlation of geometry and appearance to improve the resolution.

M.S., Interdisciplinary Information Science, University of Tokyo.
March, 2011
Concentrations: Multi-view Stereo, Camera Calibration
Thesis: "3D reconstruction with multiple hand-held cameras: a hand-held camera calibration technique using the metric background structure and confidence based multiple wide-baseline stereo" (*excellent master thesis award*)
Supervisor: Dr. Kiyoharu Aizawa
GPA: 4.00/4.00
Key Project:

- Reconstructing the accurate 3D structure of moving objects with multiple hand-held cameras. It includes developing a new camera calibration method optimized to hand-held cameras and realized accurate dense depth map estimation by using a new technique. This project is designed towards developing a novel application for 3D TVs.

B.A., Psychology, University of Tokyo. March, 2009
Concentrations: Low-level Vision, Stereopsis, Psychophysics
Thesis: "The effect of temporal frequency on the stereoscopic depth perception with dynamic random-dot stereograms"
Supervisor: Dr. Takao Sato
GPA: 3.87/4.00

AWARD

Excellent Master Thesis Award. March, 2011
Dr. Hiroshi Harashima Young Researcher's Award. June, 2011

EXPERIENCE

Research Fellow (DC2) - Japan Society for the Promotion of Science.
April 2012 - March 2014: This fellowship program is granted to doctoral course students who will play an important role in future scientific research activities in Japan.

Research Internship at Microsoft Research Asia. 25, July - 26, October 2011
Advisor: Dr. Yasuyuki Matsushita (Visual Computing Group)
Research Topic: Photometric Stereo

ACM SIGGRAPH Asia 2009 Student Volunteer. 15-18, December 2009
Work: Operation assistance of "Art Gallery" and "Emerging Technology".