

Ming-Yu Liu

201 Broadway • Suite 8 • Cambridge, MA 02139
(617) 621-7519 • mliu@merl.com

Research

- **Interest:** Computer vision, machine learning, natural language processing, robotics, and artificial intelligence.
 - **Expertise:** Semantic scene labeling, object detection, image segmentation, depth upsampling, template matching, object pose estimation, deep learning, supervised learning, unsupervised learning, and reinforcement learning.
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Publication

- R&D 100 Award, 2014
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Publication

- **Recursive context propagation network for semantic scene labeling**
Neural Information Processing Systems (NIPS), 2014
A. Sharma, O. Tuzel, **Ming-Yu Liu**
 - **Learning to rankd 3D features**
European Conference on Computer Vision (ECCV), 2014
O. Tuzel, **Ming-Yu Liu**, Y. Taguchi, A. Raghunathan
 - **Joint Geodesic Upsampling of Depth Images**
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2013
Ming-Yu Liu, O. Tuzel, Y. Taguchi
 - **Entropy Rate Clustering: Cluster Analysis via Maximizing a Submodular Function subject to a Matroid Constraint**, IEEE Transaction on Pattern Analysis and Machine Intelligence (TPAMI), 2013
Ming-Yu Liu, O. Tuzel, S. Ramalingam, R. Chellappa
 - **Model-Based Vehicle Pose Estimation and Tracking in Videos Using Random Forests**
IEEE International Conference on 3D Vision (3DV), 2013
M. Hödlmoser, B. Micusik, M. Pollefeys, **Ming-Yu Liu**, M. Kampel
 - **Fast Object Detection and Pose Estimation in Heavy Clutter for Robotic Bin-Picking**
International Journal of Robotics Research (IJRR) 2012
Ming-Yu Liu, O. Tuzel, A. Veeraraghavan, Y. Taguchi, T. Marks, R. Chellappa
 - **Voting-Based Pose Estimation for Robotic Assembly Using a 3D Sensor**
IEEE International Conference on Robotics and Automation (ICRA), 2012
C. Choi, Y. Taguchi, O. Tuzel, **Ming-Yu Liu**, S. Ramalingam
 - **A Grassmann Manifold-based Domain Adaptation Approach**
International Conference on Pattern Recognition (ICPR), 2012
J. Zheng, **Ming-Yu Liu**, R. Chellappa, P. Phillips
 - **Classification and Pose Estimation of Vehicles in Videos by 3D Modeling within Discrete-Continuous Optimization**, International Conference on 3D Imaging, Modeling, Processing, Visualization and Transmission (3DIMPVT), 2012
M. Hödlmoser, B. Micusik, **Ming-Yu Liu**, M. Pollefeys, M. Kampel
 - **Entropy Rate Superpixel Segmentation**
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011
Ming-Yu Liu, O. Tuzel, S. Ramalingam, R. Chellappa
 - **Fast Directional Chamfer Matching**
IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2010
Ming-Yu Liu, O. Tuzel, A. Veeraraghavan, R. Chellappa
 - **Pose Estimation in Heavy Clutter using a Multi-Flash Camera**
IEEE International Conference on Robotics and Automation (ICRA), 2010
Ming-Yu Liu, O. Tuzel, A. Veeraraghavan, R. Chellappa, A. Agrawal, H. Okuda
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Education

- **University of Maryland College Park, Maryland** **College Park, MD, USA**
Electrical and Computer Engineering, Ph.D. 2006 – 2012
 - Dissertation: Discrete optimization methods for segmentation and matching.
 - Adviser: Rama Chellappa
 - **National Chiao Tung University** **Hsinchu, Taiwan**
Communication Engineering, B.A. 1999 – 2003
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Experience

- **Mitsubishi Electric Research Laboratories (MERL)** **Cambridge, MA**
Member of Research Staff 2012 – present
 - Conducted original research in the field of computer vision, robotics, and machine learning.
 - Developed commercial robotic bin picking systems for factory automation.
 - Developed commercial visual perception systems for autonomous driving.
 - Developed commercial image recognition systems for satellite image analysis.
 - **Intel Innovation Center** **Taipei, Taiwan**
Software Engineer 2005 – 2006
 - Developed embedded systems for smart TV applications using Intel X-Scale Arm processor and Linux.
 - **Parachute Troop, Army** **Taiwan**
Officer, Second Lieutenant 2003 – 2005
 - Conducted military training and communication equipment maintenance.
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Core Technical Skills

Languages: C, C++, Java, JavaScript, \LaTeX , Perl, Python, shell script, SQL
Open Source Contributions: Project A, Project B, Project C