Ming-Yu Liu

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Research

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

Awards

- R&D 100 Award by R&D magazine, 2014
- University of Maryland, Teaching Fellowship, 2011

Publications

- **Layered interpretation of street view images**
  Robotics: Science and Systems Conference (RSS), 2015
  Ming-Yu Liu, Shuoxin (Allen) Lin, Srikumar Ramalingam, Oncel Tuzel
- **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**
  Intl. 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

Patents

- US8428363, US8983177, US8908913

Services

- **Reviewer**: IEEE Transaction on Image Processing, IEEE Signal Processing Letters, Journal of Computer Vision and Image Understanding,
- **Technical committee member**: IEEE Conference on Computer Vision and Pattern Recognition (CVPR), IEEE International Conference on Computer Vision (ICCV), European Conference on Computer Vision (ECCV), IEEE Internal Conference on Robotics and Automation (ICRA), Conference on Advancement of Artificial Intelligence (AAAI)

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*

Experiences

- **Mitsubishi Electric Research Laboratories (MERL)** **Cambridge, MA**
  Pricipal Member of Research Staff *2012 – present*
  - Conducted original research in the field of computer vision, robotics, and machine learning.
  - Researched and developed robotic bin picking systems for factory automation.
  - Researched and developed commercial perception systems for autonomous driving.
  - Researched and developed commercial image recognition systems for satellite image analysis.
  - Launched products: MELFA-3D vision
- **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.

Core Programming Skills

Languages: C/C++, Python, Matlab
Libraries: OpenGL, OpenCV, EIGEN, Coin-OR, Gurobi, Caffe

Hobbies

- Snowboarding, Tennis, Basketball, Chinese Kungfu