

Eshed Ohn-Bar

CONTACT INFORMATION

9500 Gilman Drive, MC 0436
Dept. of Electrical and Computer Engineering
University of California, San Diego
La Jolla, CA 92093 USA

Phone: (310) 598-8209
Email: eoahnbar@ucsd.edu
Website: <http://cvrr.ucsd.edu/eshed>

EDUCATION

University of California, San Diego, La Jolla, CA USA
Ph.D. Student in Electrical Engineering (GPA: 3.862)
Advisor: Mohan M. Trivedi

Sep. 2011 – now

University of California, Los Angeles, Los Angeles, CA USA
B.S. Mathematics (Summa Cum Laude, GPA: 3.988)
M.Ed. Teaching, Urban Schools, and Social Justice

Jun. 2011

RESEARCH EXPERIENCE

Computer Vision and Robotics Research Laboratory
Graduate Student Researcher

Dec. 2011 – now

- **On-Road Scene Understanding:** I'm currently working on object detection, tracking, and activity recognition of surround agents (pedestrians and vehicles) from multi-modal data. In the process, I've developed object recognition modules for fast detection, object orientation inference, and occlusion state analysis. Furthermore, I'm studying the role of contextual cues and the importance of structural classifiers for deep object detection and localization.
- **Vision-based Driver Pose and Gesture Recognition:** Developed hand, head, and foot activity tracking algorithms from RGBD and motion data for maneuver analysis. Improved occlusion-handling tracking of hands in the vehicle using activity-exemplar tracklets.
- **What Will the Driver Do Next?** Researched multi-modal early event prediction with temporal Conditional Random Fields and Multiple Kernel Learning. Employed vehicle dynamics and sensor fusion of cameras, radar, and lidar.
- **Challenge Organizer:** Organized the VIVA (Vision for Intelligent Vehicles and Applications) challenge – an online platform and evaluation server for sharing driving-related vision datasets (downloaded over 700 times).
- **System on Chip:** Collaborated on the design and implementation of on-road vehicle detection software for on-chip realization (C++).
- **Industry Collaboration and Testbeds:** Wrote funding research proposals, assisted in building and maintaining vehicular sensor suites, and worked in close collaboration with industry sponsors Toyota, Fujitsu, and NextChip.

Apple Research Internship, Cupertino, CA USA

May – Aug. 2015

University of California, Los Angeles, Los Angeles, CA USA
Researcher at the Department of Applied Mathematics

Jun. – Sep. 2010

- Advisor: Andrea Bertozzi and Todd Wittman

SELECTED PUBLICATIONS

E. Ohn-Bar and M. Trivedi. Multi-Scale Volumes for Deep Object Detection and Localization, *Pattern Recognition (PR)*, preprint, 2016.

E. Ohn-Bar and M. Trivedi, Looking at Humans in the Age of Self-Driving and Highly Automated Vehicles, *IEEE Transactions on Intelligent Vehicles (TIV)*, 2016. ([pdf](#))

S. Martin, A. Rangesh, **E. Ohn-Bar**, and M. Trivedi. The Rhythms of Head, Eyes and Hands at Intersections, *Intelligent Vehicles Symposium (IV)*, 2016. ([pdf](#))

Akshay Rangesh, **E. Ohn-Bar**, and M. Trivedi. Long-Term, Multi-Cue Tracking of Hands in Vehicles, *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, 2016. ([pdf](#))

E. Ohn-Bar, A. Tawari, S. Martin, and M. Trivedi. On Surveillance for Safety Critical Events: In-Vehicle Video Networks for Predictive Driver Assistance Systems, *Computer Vision and Image Understanding (CVIU)*, 2015. ([pdf](#))

E. Ohn-Bar and M. M. Trivedi. Learning to Detect Vehicles by Clustering Appearance Patterns, *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, 2015. ([pdf](#))

E. Ohn-Bar and M. M. Trivedi. Hand Gesture Recognition in Real-Time for Automotive Interfaces: A Multimodal Vision-based Approach and Evaluations, *IEEE Transactions on Intelligent Transportation Systems (T-ITS)*, 2014. ([pdf](#))

E. Ohn-Bar, S. Martin, A. Tawari, and M. M. Trivedi. Head, Eye, and Hand Patterns for Driver Activity Recognition, *Intl. Conference on Pattern Recognition (ICPR)*, 2014. ([pdf](#))

PROFFESIONAL ACTIVITY

Workshop Co-Organizer

- **CVPR 2015-16: Observing and Understanding Hands in Action Workshop**
- **IV 2015-16: Vision for Intelligent Vehicles and Applications Challenge/Workshop**

Reviewer

- CVIU, IMAVIS, T-SMC, T-CSVT, T-ITS, IV, ITSC, JEI, T-IE, T-VT, T-II, CVPRW-ATS

AWARDS

CVPR 2016 Travel Grant (NSF)

NVIDIA Hardware Grant

KITTI Challenge Winner, Vehicle Detection and Orientation Estimation (ECCVW) 2014

Best Industry Paper Runner-Up, International Conf. on Pattern Recognition (ICPR) 2013

Best Paper Award, CVPR Workshop on Analysis and Modeling of Face and Gestures 2013

Wilson Teaching Scholar

Mary and Sarah Nemtzon Scholarship

UCLA University Grant

UCLA Scholarship Recognition Award

TEACHING EXPERIENCE

Teaching Assistant (UCSD): Probability Theory (ECE 109 - two quarters), Computer Vision and Multimodal Perception (ECE 285 - yearly).

Dec. 2011 – now

Mathematics Instructor (High-School Level)

Sep. 2010 – Jun. 2011

PROGRAMMING EXPERIENCE

Caffe, OpenCV, Boost, LabVIEW, MATLAB, C++, CUDA C++, Python.