# Eshed Ohn-Bar

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## EDUCATION

**Ph.D., Electrical and Computer Engineering** **2016**
University of California, San Diego
Thesis: Contextual Visual Object Recognition and Behavior Modeling for Human-Robot Interactivity
Advisor: Mohan M. Trivedi

**M.S., Electrical and Computer Engineering** **2013**
University of California, San Diego
GPA: 3.86/4.0

**M.Ed., Education** **2011**
University of California, Los Angeles
Thesis: Developing Critical Thinking through a Questioning Pedagogy
GPA: 4.0/4.0

**B.S., Mathematics** **2010**
University of California, Los Angeles
GPA: 3.99/4.0

## ACADEMIC EMPLOYEMENT

**Postdoctoral Researcher, Electrical and Computer Engineering** **2017**
University of California, San Diego

## AWARDS

**Best Student Paper Award Finalist** **2016**
International Conference on Pattern Recognition, Cancun, Mexico

**IAPR Travel Award** **2016**
International Conference on Pattern Recognition, Cancun, Mexico

**NSF Travel Award** **2016**
International Conference on Computer Vision and Pattern Recognition, Las Vegas

**NVIDIA Hardware Award** **2015**

**1st place, KITTI Vehicle Detection and Orientation Estimation Challenge** **2014**
Reconstruction Meets Recognition Workshop, ECCV, Zurich

**Best Industry Related Paper Award Finalist** **2013**
International Conference on Pattern Recognition, Stockholm, Sweden

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

**Wilson Teaching Scholar, UCLA** **2009**
**Mary and Sarah Nemtzon Scholarship, UCLA** **2009**
**UCLA Scholarship Recognition Award** **2008**

## PROFESSIONAL ACTIVITY

**Co-Organization of Workshops**
CVPR: Observing and Understanding Hands in Action **2015, 2016**
IV: Vision for Intelligent Vehicles and Applications Challenge & Workshop **2015, 2016**

**Program Committee**
CVPR: International Workshop on Automatic Traffic Surveillance **2016**

**Reviewer**: CVIU, IMAVIS, T-SMC, T-CSVT, T-ITS, T-IV, JEI, T-IE, T-VT, T-II, CVPRW-ATS, CVPR-HANDS, IV, ITSC

## RESEARCH EXPERIENCE

**Research Assistant, UCSD** **2012-2016**

**Research Internship** **2015**
Apple, Computer Vision

**Researcher, UCLA Applied Mathematics Department** **2010**
Research for undergraduates program (with Andrea Bertozzi and Todd Wittman)

## STUDENT MENTORING

**Aida Khosroshahi**, Master Student **2016**
**Rakesh Rajaram**, Master Student (now at Qualcomm Research) **2016**
**Akshay Rangesh**, Master Student (now PhD at UCSD) **2016**
**Miklas Strøm Kristoffersen**, Master Student (now PhD at Aalborg University) **2016**
**Jacob Dueholm**, Master Student (now RA at Aalborg University) **2016**
**Grady Kestler**, Master Student **2015**
**Nikhil Das**, Master Student (now PhD at UCSD) **2015**
**Alfredo Ramirez**, Master Student **2014**
**Aaron Spanner**, Undergraduate Research **2013**

## TEACHING EXPERIENCE

**Computer Vision and Multimodal Perception, UCSD** **2013, 2014, 2015, 2016**
TA for Mohan M. Trivedi [Graduate course]

**Engineering Probability and Statistics, UCSD** **Winter 2012, Spring 2012**
TA for Robert Lugannani and Ken Zeger [Undergraduate course]

**Mathematics and Engineering Instructor, Institute for the Gifted at UCLA** **2011**

**Mathematics Instructor, Roosevelt High School, Los Angeles** **2011**
Geometry, Math Intervention
**Hebrew Instructor, Sinai Temple, Los Angeles** **2007-2009**

## PUBLICATIONS

Four selected publications are marked in green.

### JOURNAL PAPERS

* **E. Ohn-Bar** and M. Trivedi. Are all objects equal? Deep spatio-temporal importance prediction in driving videos. *Pattern Recognition (**PR**)*, 2017.

R. Rajaram, **E. Ohn-Bar**, and M. Trivedi. Refining deep vehicle detectors for autonomous driving. *IEEE Trans. on Intelligent Vehicles (**T-IV**)*, 2017.

* **E. Ohn-Bar** and M. Trivedi. Looking at humans in the age of self-driving and highly automated vehicles. *IEEE Trans. on Intelligent Vehicles (**T-IV**)*, 2016.

**E. Ohn-Bar** and M. Trivedi. Multi-scale volumes for deep object detection and localization. *Pattern Recognition (**PR**)*, 2016.

A. Rangesh, **E. Ohn-Bar** and M. Trivedi. Long-term, multi-cue tracking of hands in vehicles. *IEEE Trans. on Intelligent Transportation Systems (**T-ITS**),* 2016.

* **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.

**E. Ohn-Bar** and M. Trivedi. Learning to detect vehicles by clustering appearance patterns. *IEEE Trans. on Intelligent Transportation Systems (**T-ITS**),* 2015.

* **E. Ohn-Bar** and M. Trivedi. Hand gesture recognition in real-time for automotive interfaces: a multimodal vision-based approach and evaluations. *IEEE Trans. on Intelligent Transportation Systems (**T-ITS**),* 2014.

**E. Ohn-Bar**, Sujitha Martin, and M. Trivedi. Driver Hand Activity Analysis in Naturalistic Driving Studies: Issues, Algorithms and Experimental Students. *Journal of Electronic Imaging (**JEI**),* 2013.

**PAPERS IN REVIEWED PROCEEDINGS**

**E. Ohn-Bar** and M. Trivedi. What makes an on-road object important? In *Proc. International Conference on Pattern Recognition (**ICPR**),* 2016. (**best student paper award finalist**)

**E. Ohn-Bar** and M. Trivedi. To boost or not to boost? On the limits of boosted trees for object detection. In *Proc. International Conference on Pattern Recognition (**ICPR**),* 2016. (**best student paper award finalist**)

**E. Ohn-Bar** and M. Trivedi. Detection and localization with multi-scale models. In *Proc. International Conference on Pattern Recognition (**ICPR**),* 2016.

A. Rangesh, **E. Ohn-Bar**, K. Yuen, and M. Trivedi. Pedestrians and their phones - detecting phone-based activities of pedestrians for autonomous vehicles. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2016.

A. Khosroshahi, **E. Ohn-Bar**, and M. Trivedi. Surround vehicles trajectory analysis with recurrent neural networks. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2016.

R. Rajaram, **E. Ohn-Bar**, and M. Trivedi. RefineNet: Iterative refinement for accurate object localization. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2016.

J. V. Dueholm, M. S. Kristoffersen, R. K. Satzoda, **E. Ohn-Bar**, T. B. Moeslund and M. Trivedi,. Multi-perspective vehicle detection and tracking: challenges, dataset, and metrics. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2016.

R. Rajaram, **E. Ohn-Bar**, and M. Trivedi. A study of vehicle detector generalization on US highway. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2016.

S. Martin, A. Rangesh, **E. Ohn-Bar**, and M. Trivedi. The rhythms of head, eyes, and hands at intersections. In *Proc. IEEE Intelligent Vehicles Symposium (**IV**),* 2016.

N. Das, **E. Ohn-Bar**, and M. Trivedi. On performance evaluation of driver hand detection algorithms: challenges, dataset, and metrics. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2015.

R. Rajaram, **E. Ohn-Bar**, and M. Trivedi. An exploration of why and when pedestrian detection fails. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2015.

**E. Ohn-Bar** and M. Trivedi. A comparative study of color and depth features for hand gesture recognition in naturalistic driving settings. In *Proc. IEEE Intelligent Vehicles Symposium (**IV**),* 2015.

**E. Ohn-Bar** and M. Trivedi. Can appearance patterns improve pedestrian detection? In *Proc. IEEE Intelligent Vehicles Symposium (**IV**),* 2015.

**E. Ohn-Bar** and M. Trivedi. Beyond just keeping hands on the wheel: towards visual interpretation of driver hand motion patterns. In *Proc. IEEE Intelligent Transportation Systems Conference (**ITSC**),* 2014.

**E. Ohn-Bar**, S. Martin, A. Tawari, and M. Trivedi. Head, eye, and hand patterns for driver activity recognition. In *Proc. International Conference on Pattern Recognition (**ICPR**),* 2014. (**best industry-related paper award finalist**)

**E. Ohn-Bar**, A. Tawari, S. Martin, and M. Trivedi. Vision on wheels: looking at driver, vehicle, and surround for on-road maneuver analysis. In *Proc. Conference on Computer Vision and Pattern Recognition Workshops (**CVPR-Mobile Vision**),* 2014.

**E. Ohn-Bar** and M. Trivedi. Fast and robust object detection using visual subcategories. In *Proc. Conference on Computer Vision and Pattern Recognition Workshops (**CVPR-Mobile Vision**),* 2014.

A. Ramirez, **E. Ohn-Bar**, and M. Trivedi. Go with the flow: improving multi-view vehicle detection with motion cues. In *Proc. International Conference on Pattern Recognition (**ICPR**),* 2014.

**E. Ohn-Bar** and M. Trivedi. Joint angles similarities and $HOG^2$ for action recognition. In *Proc. Conference on Computer Vision and Pattern Recognition Workshops (**CVPR-Human Activity Understanding from 3D Data**),* 2013.

**E. Ohn-Bar** and M. Trivedi. The power is in your hands: 3D analysis of hand gestures in naturalistic video. In *Proc. Conference on Computer Vision and Pattern Recognition Workshops (**CVPR-Analysis and Modeling of Faces and Gestures**),* 2013. (**best paper award**)

**E. Ohn-Bar**, S. Sivaraman, and M. Trivedi. Partially occluded vehicle recognition and tracking in 3D. In *Proc. IEEE Intelligent Vehicles Symposium (**IV**),* 2013.

**E. Ohn-Bar** and M. Trivedi. In-vehicle hand activity recognition using integration of regions. In *Proc. IEEE Intelligent Vehicles Symposium (**IV**),* 2013.

**E. Ohn-Bar** and M. Trivedi. Hand gesture-based visual user interface for infotainment. In *Proc. Automotive User Interfaces and Interactive Vehicular Applications (**AUTO-UI**),* 2012.

## REFERENCES

**Mohan M. Trivedi**
Professor, ECE
University of California, San Diego, CA
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**Serge Belongie**
Professor, CS
Cornell University & Cornell Tech, NY
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**Tae-Kyun Kim**
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**Kyndall Brown**
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