# Intelligent Robots and Computer Vision XXXIII: Algorithms and Techniques

## Introduction

On behalf of the Conference Committee for the Thirty-third Intelligent Robots and Computer Vision XXXIII: Algorithms and Techniques conference, we welcome you to this annual conference which is part of the 2016 IS&T International Symposium on Electronic Imaging (EI 2016), held at the Hilton San Francisco Union Square in San Francisco, California, 14-18 February 2016.

The conference program was organized into three thematic tracks: Intelligent Ground Vehicle Competition, Motion Accommodation, and Feature Extraction and Recognition.

The keynote provided a review of the 23rd Annual Intelligent Ground Vehicle Competition: building engineering students into roboticists.

We are honored that Mr. Bernard Theisen, U.S. Army Tank Automotive Research Development and Engineering Center (TARDEC), consented to present the keynote lecture. Mr. Theisen is currently the Technical Manager for the Autonomous Mobility Appliqué System (AMAS). His team is responsible for the joint Army and Marnie Corps architecture for robotic kits for tactical wheeled vehicles (TWV).

The conference presented six original research paper submissions, which included one manuscript submitted through the IS&T's Journal of Information Science and Technology (JIST). This paper, delivered by Shunta Saito, Keio Leading-edge Laboratory (Japan), proposes a Convolutional Neural Networks (CNN)-based buildings and roads extraction system with new technics to train a single CNN efficiently for extracting multiple kinds of objects simultaneously, with improvements in prediction performance.

We want to sincerely thank the Conference Committee members and all contributing authors.

We hope that you all have an excellent experience at Intelligent Robots and Computer Vision XXXIII, and look forward to your continued support of the meeting in future.

# Intelligent Robots and Computer Vision XXXIII: Algorithms and Techniques

## Wednesday, February 17, 2016

**Keynote: The 23rd Annual Intelligent Ground Vehicle Competition: Building Engineering Students into Robotists**
Session Chairs: David Casasent, Carnegie Mellon University (USA) and Juha Roning, University of Oulu (Finland)
**9:10 – 9:50 am**
Golden Gate 8

ROBVIS-390
**The 23rd Annual Intelligent Ground Vehicle Competition: Building engineering students into robotists,** *Bernard Theisen, US Army TARDEC (USA)*

### Robotic Vision: Motion Accommodation

Session Chairs: David Casasent, Carnegie Mellon University (USA) and Juha Roning, University of Oulu (Finland)

**9:50 – 10:20 am**
Golden Gate 8

9:50 ROBVIS-391
**Modeling active vision during smooth pursuit of a robotic eye,** *Jacek Turski, University of Houston-Downtown (USA)*

10:20 – 10:50 am Coffee Break

### Feature Extraction and Recognition

Session Chairs: David Casasent, Carnegie Mellon University (USA) and Juha Roning, University of Oulu (Finland)

**10:50 am – 12:20 pm**
Golden Gate 8

10:50
**Conference Welcome**

10:55 ROBVIS-392
**Multiple objects extraction from aerial imagery with Convolutional Neural Networks (JIST-first),** *Shunta Saito[1], Takayoshi Yamashita[2], and Yoshimitsu Aoki[1]; [1]Keio University and [2]Chubu University (Japan)*

11:20 ROBVIS-393
**Pixel based cost computation using weighted distance information for cross-scale stereo matching,** *Yong-Jun Chang and Yo-Sung Ho, Gwangju Institute of Science and Technology (South Korea)*

11:45 ROBVIS-394
**Feature extraction using block-based Local Binary Pattern for face recognition,** *Abdelmalik Moujahid, Amaia Abanda, and Fadi Dornaika, University of the Basque Country UPV/EHU (Spain)*

12:10 ROBVIS-395
**Place recognition using image retrieval with covariance descriptors,** *Fadi Dornaika[1], Ammar Assoum[2], and Abdelmalik Moujahid[1]; [1]University of the Basque Country (Spain) and [2]Lebanese University (Lebanon)*

12:20 – 2:00 pm Lunch Break

**EI 2016 Wednesday Plenary and Symposium Awards**
Session Chair: Choon-Woo Kim (Inha University)
**2:00 – 3:00 PM**
Continental Ballroom 5

**Intel® RealSense Technology: Adding human-like sensing and interactions to computing devices,** *Achin Bhowmik, Intel Corporation (USA)*

3:00 – 3:30 pm Coffee Break

### Intelligent Robots and Computer Vision XXXIII: Algorithms and Techniques Interactive Papers Session

**5:30 – 7:00 pm**
Continental Ballroom 6

The Intelligent Robots and Computer Vision XXXIII interactive paper will be presented in the EI 2016 Symposium Interactive Papers Session.