

**THE 5<sup>TH</sup> INTERNATIONAL WORKSHOP ON  
APPLICATIONS OF COMPUTER IMAGE ANALYSIS AND  
SPECTROSCOPY IN AGRICULTURE**

**Technical Program**

**Saturday July 12, 2014**

7:30 AM - 5:00 PM Registration

**8:00 AM – 12:00 PM Morning Session**

Opening Remark: Bosoon Park

Welcoming Remark: Dr. Lalit Verma, ASABE President

8:30 AM – 9:10 AM Keynote speaker (Dr. Naoshi Kondo, Kyoto University)

**Title: Machine Vision System for Higher Quality Image Acquisition - Fluorescence imaging for slight defect detection on fruit surface and beef cattle pupil image for serum vitamin A measurement -**

Session Chair(s) I: Victor Alchanatis and Enrique Molto

9:10 AM Introduction

9:15 AM – 9:35 AM

**Automated camera-based height and flower detection for wheat and chickpea**

Alison McCarthy, Matthew Tscharke

9:35 AM – 9:55 AM

**Phenotyping cotton with hyperspectral remote sensing and PROSAIL model inversion**

Kelly R. Thorp, Michael Gore, Pedro Andrade-Sanchez, Elizabete Carmo-Silva, Jeffrey White, Andrew French

9:55 AM – 10:15 AM

**Laser weeding system for elimination of in-row weeds**

Sudhir Vyasaraaja, Won Suk Lee

10:15 AM – 10:35 AM Coffee Break

10:35 AM – 10:55 AM

**Early Detection of Chilling Injury Symptom in Bananas using RGB Imaging**

Norhashila Hashim, Rimfiel Janius, Russly Abdul Rahman, Azizah Osman, Manuela Zude

10:55 AM – 11:15 AM

**Autonomous computer vision system for quality grading of fruit on mobile platforms**

Sergio Cubero, Santiago Alegre, Nuria Aleixos, Enrique Molto, Delia Lorente, Jose Blasco

11:15 AM – 11:25 AM

**Simultaneous detection of bruises and rottenness on apples based on an online hyperspectral line-scan imaging system**

Wenqian Huang

11:25 AM – 12:15 PM Panel discussion

12:15 PM - 2:00 PM Lunch

**2:00 PM – 5:00 PM Afternoon Session**

Session Chair(s) II: Scott Noble and Jose Blasco

2:00 PM Introduction

2:05 PM – 2:25 PM

**Model-Free Classifier for Hyperspectral NIR Evaluation of Wheat for Fusarium and DON (Vomitoxin)**

Jennifer Brown, Jason Morrison, Jitendra Paliwal

2:25 PM – 2:45 PM

**Fruit identification of Actinidia deliciosa cv Hayward using image analysis**

Yongjie Cui, Longsheng Fu, Fanian Zhang, Yoshinori Gejima, Taiichi Kobayashi

2:45 PM – 3:05 PM

**Better understanding of undesirable fibrous tissue in processing carrots by evaluating their Computed Tomography (CT) images and structural carbohydrate biochemistry**

Irwin Donis-González, Daniel Guyer, Rui Chen, Anthony Pease

3:05 PM – 3:25 PM Coffee Break

3:25 PM – 3:45 PM

**A flexible image analysis equipment to assess industrial milled rice classes**

Federico Pallottino, Francesca Antonucci, Corrado Costa, Roberto Carrière, Paolo Menesatti

3:45 PM – 4:05 PM

**Image Segmentation Algorithm for Infrared Image of Pleurotus Eryngii**

Yunsheng Wang

4:05 PM – 5:00 PM Panel Discussion

5:00 PM – 6:00 PM Poster Setup

Posters:

- 1. The concentration of water and fertilizer online detection device based on spectral technology**  
Yubin Zhang, Zhengying Wei
- 2. Study on Machine Vision System of Grading Seedlings and Inspecting Gap for Tomato Grafting Robot**  
Subo Tian, Lei Zhang, Tianlai Li
- 3. A vision based autonomous robot for weed destruction**  
Sruthi Moorthy Krishna Moorthy Parvathi, Renaud Detry, Bernard Boigelot, Benoît Mercatoris
- 4. Computer vision techniques to estimate cluster variables in winegrapes**  
Jose Blasco, Maria Paz Diago, Jose Manuel Prats-Montalban, Nuria Aleixos, Sergio Cubero, Javier Tardaguila
- 5. Determination of paddy maturity using color indices**  
Siti Khairunniza Bejo, Norsolehah Azman, Wan Ishak Wan Ismail, Aimrun Wayayok
- 6. Scanning Electron Microscopy Characterization of Fish Feeds Produced Using Compression Pelleting and Extrusion**  
Folasayo Fayose, Zhongjie Huan
- 7. Lattice Boltzmann Simulations of Micro-channel in Trickle Emitter**  
Shengli Ma, Zhengying Wei, Yubin Zhang, Yiping Tang
- 8. A Distributed Sediment Delivery Ratio Concept for Sediment Yield Modeling: A Case Study of Upper Mereb River Catchment, Eritrea**  
Zerai Habtu
- 9. Detection of virus-infected seed (*Nicotiana tabacum*) using short wave infrared hyperspectral imaging**  
Hoonsoo Lee, Byoung-Kwan Cho
- 10. Visualization of gluten, starch and butter in pie pastry by fluorescence fingerprint imaging**  
Mito Kokawa, Naoto Yokoya, Hiroko Ashida, Junichi Sugiyama, Mizuki Tsuta, Masatoshi Yoshimura, Kaori Fujita, Mario Shibata
- 11. Real time processing technique for image analysis-based weed spot spraying at commercial ground speeds**  
Steven Rees, Cheryl L. McCarthy

6:00 PM – 8:00 PM Poster Session with Reception Chair: Bosoon Park

**Sunday July 13, 2014**

7:30 AM – 12:00 PM Registration

**8:30 AM – 12:00 PM Morning Session**

Session Chair(s) III: Scott Noble and Victor Alchanatis

8:30 AM Introduction

8:35 AM – 9:05 AM Invited speaker– 30 min (TBD)

9:05 AM – 9:25 AM

**Occlusion-tolerant image segmentation using colour and depth data with application to weed spot spraying in sugarcane and pyrethrum crops**

Steven Rees, Cheryl L. McCarthy

9:25 AM – 9:45 AM

Food-Color Inspector, a software tool for analyzing the color of agricultural products from images

Francisco Albert, Nuria Aleixos, Sergio Cubero, Jose Blasco

9:45 AM – 10:05 AM

Classification of Cereals using Near-infrared (NIR) Hyperspectral Imaging

Lankapalli Ravikanth, Digvir S. Jayas, Noel White

10:05 AM – 10:25 AM Coffee Break

10:25 AM – 10:45 AM

Hyperspectral visible-near infrared Arsenic determination in polluted soil

Paolo Menesatti, Francesca Antonucci, Federico Pallottino, Corrado Costa, Rosita Marabottini, Maurizio Petruccioli, Silvia Rita Stazi

10:45 AM – 11:05 AM

**Real time processing technique for image analysis-based weed spot spraying at commercial ground speeds**

Steven Rees, Cheryl L. McCarthy

11:05 AM – 12:00 PM Panel Discussion

12:00 PM Concluding Remark

6:00 PM - 8:00 PM ASABE/CSBE Reception