Summary of the 22nd Summer School on Image Processing July 9-18, 2014 University of Zagreb, Croatia

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Organizer and Sponsors

- Organizer
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SSIP

- The summer school has a long tradition and is targeted towards graduate and postgraduate students providing opportunity for students to gain new knowledge in this exciting research area.
- SSIP program consists of lectures covering basic and advanced topics in image processing and analysis. In addition to theoretical presentations, the program includes practical work on program implementations of various practical problems. The practical work is done in participant teams with final presentations at the end of the school.

Lectures

- Computerized and Discrete Tomography: Methods and Applications
- 2D and 3D Computer Vision in Application-Oriented Tasks
- From biomedical images to computational modelling of physiology
- Vascular segmentation and geometric characterization
- Image Segmentation by Combining Graph Cut and Oriented Active Appearance Models
- Offline handwriting recognition of archive documents
- Anatomical Structure Localization in 2D and 3D Medical Image Data
- Image Processing in the Compressed Domain
- Retinal Image Analysis
- Evaluation in Medical Image Processing and Search
- Detecting objects in images
- Markov random fields in image segmentation
- Sparse component analysis approach to unsupervised multichannel image decomposition
- An introduction to image classification
- Image Formation and Image Restoration-A Case Study: Mammography
- Fuzzy techniques for image segmentation
- Skeleton-based shape representation and its applications
- Real Time Face Tracking
- 3D surface measurement based on structured light
- Multimodal Biometric Authentication Based on Hand and Face Features
- Stereoscopic reconstruction of structure and motion
- Statistical shape models for segmentation and quantification
- The analysis of multidimensional data

Student Projects

- **# 1: 3D Vascular segmentation and skeletonization**
- **# 2: Bicycle detection at street crossings**
- **# 3: Butterfly recognition**
- **# 4: From statistical constraints to global regressors**
- **# 5: Image restoration by using different deconvolution algorithms**
- **# 6: Blood vessel detection in fundus photographs**
- **# 7: Detection of roadside vegetation**
- **# 8: Recognition of doors and steps**

Awards

- **Best Projects**
  - **First place:** *From Statistical Constraints to Global Regressors* with the team members Inka Brijačak, Bastian Weiß, Zsolt Sánta, and Luka Malovan
  - **Second place:** *3D Vascular Segmentation and Skeletonization* with the team members Tímea Hülber, Ivan Khomyakov, Muhammet Üsame Öziç, Jasmin Kuč, and Mateo Gašparović
  - **Third place:** *Blood Vessel Detection in Fundus Photographs* with the team members Simona-Elena Valean, Martina Melinščak, Mustafa Karhan, Szabolcs Urbán, and Viktor Kolobarić
- **Best Lecturer (by the evaluation of the students)**
  - Csaba Beleznai (Austrian Institue of Technology, Austria): 2D and 3D Computer Vision in Application-Oriented Tasks
- **Best Examination Result**
  - Mihovil Vinković, Croatia

Acknowledgement

The preparation of this presentation was supported by the **European Union** and the **State of Hungary, co-financed by the European Social Fund** in the framework of TÁMOP-4.2.4.A/2-11/1-2012-0001 ‘National Excellence Program’.