UNIVERSITEIT GENT

Practical information

The public PhD defense will take place on
Thursday, March 13th, 2014 at 16:00
in Jozef Plateau room,
in the Faculty of Engineering and
Architecture of Ghent University,
Jozef Plateaustraat 22, 9000 Gent.

After the public defense, you are cordially invited to the reception, which will take place in the same building, near the meeting room Magnel.

For organizational reasons, I would kindly ask you to **confirm your attendance** before **Wednesday, March 5th, 2014** by e-mail: truzic@telin.ugent.be.

Summary of the PhD thesis

Since nowadays digital images and videos are used virtually everywhere, the demands of end users regarding their quality are ever increasing. However, due to physical limitations and cost restrictions, acquired digital images are imperfect in terms of image resolution, noise, etc. Furthermore, digital images obtained by digitizing old imaging material, like old photographs and films, as well as artwork, can also suffer from other degradations, such as scratches, dust, and cracks, which are caused by their ageing. Removing these degradations with digital post-processing techniques does not only improve the visual experience, but also facilitates the analysis of image content. Some of these techniques can also be used for image editing in order to remove unwanted elements from images, like stamped date, watermarks, or even the whole objects.

In this thesis, we develop novel digital post-processing techniques to increase image resolution and remove artefacts and unwanted objects from images. Besides applying these techniques on the images of natural scenes, we also consider the application of crack removal in digitized paintings. The main approaches that we explore to achieve these goals are: graphical (Markov random field) modelling, patch representations and image self-similarity and the use of texture features for context description.

Curriculum vitae

Tijana Ružić was born on December 13th, 1983 in Novi Sad, Serbia. In 2008 she received her master degree in Electrical and Computer Engineering from the Faculty of Technical Sciences, University of Novi Sad, Serbia.

In September 2008, she joined the Image Processing and Interpretation group, the Department of Telecommunications and Information Processing, Ghent University, Belgium. Her main research interests are patch representations and Markov random field models in image restoration.

In terms of publications, so far her research resulted in two publications in international peer-reviewed journals, one journal submission and two book chapters. Furthermore, eleven papers were published in the proceedings of national and international conferences and seven abstracts were presented in national and international conferences.

Promoters

prof. dr. ir. Wilfried Philips
TELIN, Ghent University

prof. dr. ir. Aleksandra Pižurica
TELIN, Ghent University

Members of the jury

prof. dr. ir. Rik Van de Walle
(chairman), Ghent University

prof. dr. Ingrid Daubechies
Mathematics Department, Duke University

prof. dr. Ann Dooms
ETRO, Vrije Universiteit Brussel

prof. dr. ing. Dieter Fiems
TELIN, Ghent University

dr. ir. Hiêp Quang Luong
TELIN, Ghent University

dr. lic. Ewout Vansteenkiste
MEDISIP, Ghent University

prof. dr. ir. Vladimir Zlokolica
Department of Fundamental Disciplines,
University of Novi Sad

Location

Arriving by car: the closest parking place is the Sint-Pietersplein. From there you can walk to the Plateaustraat.

Arriving by train: take number 1 tram from the Sint-Pietersstation and exit at the Verlorenkost tram stop (situated at the beginning of the Plateaustraat).

Faculteit Ingenieurswetenschappen en Architectuur
Vakgroep Telecommunicatie en Informatieverwerking

Invitation
for the public PhD defense of

ir. Tijana Ružić

Patchgebaseerde grafische modellen voor beeldrestauratie

Patch-based Graphical Models for Image Restoration

IPI iMinds CONNECT.INNOVATE.CREATE ENGINEERING ARCHITECTURE