Conference Program

October 6-8, 2014

Uberlândia, Brazil

Hosted by:

Faculty of Computer Science

Federal University of Uberlândia, Brazil

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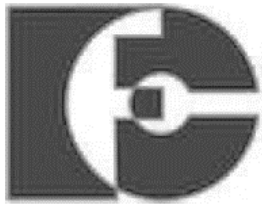

WVC 2014

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Keynote 1
Markerless augmented reality

Antonio Lopes Apolinário Jr.
Federal University of Minas Gerais, Brazil

Augmented reality applications mixed real and synthetic data in a common frame based on some referencial marker of the real scene. Traditionally, this reference marker was a synthetic pattern included in the scene. This strategy makes easy the registration process but is not feasible to all applications. Nowadays it is common to define these markers as elements in the scene, what we call marker less augmented reality. Although reference points still are needed they can be part of the real scene. This approach can use techniques based on image processing or in the geometric reconstruction of the scene (or part of it). In this lecture we will present our current work in markerless augmented reality based on geometric registration and discuss an application of these techniques in medicine.

Dr. Antonio L. Apolinário Jr. received the Doctor in Science degree from COPPE/UFRJ. He is currently a Professor in the Technology Department of State University of Feira de Santana - Bahia, and in the Multi-institutional Doctorate Program on Computer Science (UFBA/UEFS/UNIFACS). His research areas are: Computer Graphics, Visualization, Computer Animation, Augmented Reality, GPU programming and Computer Games.

Keynote 2

Distance Transformation: algorithms and aplications

Francisco de Assis Zampirolli
Federal University of ABC, Brazil

The Distance Transform is one of the classical operators in image processing, and can be used in Pattern Recognition and Data Mining, and there is currently a great demand for efficient parallel implementations on graphics cards, known as GPU. Distance transform is a classical transformations in Mathematical Morphology and its algorithms that can be written using a fundamental morphological operator. The performance of the algorithms is an important research problem. To improve them, some algebraic properties like indempontence and decomposition of structuring functions needs to be used. Morphological operators can be coded in parallel, sequential, or propagation sweeping patterns. There are also sweeping patterns Directional and Multidimensional. In this second algorithm the distance transform can be composed by several one dimensional erosions. The structuring functions used in the erosion belongs to a family of four directional one-dimensional two-point structuring functions. The erosion algorithm is based on a propagation scheme very simple to code and understand, yet being one of the fastest euclidean distance transform algorithms in the literature. Some of these sweeping patterns, known as brute-force, can be implemented in GPU, and even then present excellent results, comparable to the best CPU algorithms, which might contribute to future applications in image processing.

Dr. Francisco de Assis Zampirolli is a Professor in the Center of Mathematical, Computer and Cognition at the Federal University of ABC, Brazil. He received his BSs degrees in Mathematics from the Federal University of Espírito Santo, Brazil in 1992, and MSc in Applied Mathematics from the University of São Paulo, Brazil in 1997, and Ph.D. in Electrical Engineering from the University of Campinas, Brazil in 2003. Has experience in the area of Computer Science, with emphasis on Image Processing, acting on the following subjects:mathematical morphology, computer vision, automatic code generation and documents, GPU, and mobile devices.

Keynote 3

Smart Surveillance at Large Scale

William Robson Schwartz
Federal University of Minas Gerais, Brazil

Computer Vision problems applied to surveillance have been studied for several years aiming at finding accurate and efficient solutions, required to allow the execution of surveillance systems in real environments. The main goal of such systems is to analyze the scene focusing on the detection and recognition of suspicious activities performed by humans in the scene, so that the security personnel can pay closer attention to these preselected activities. Several challenges are present on surveillance, among them are the large amount of data that need to be processed due to the large number of cameras capturing data; low quality of the acquired data due to the small size of the objects in the videos; and the strong relationship between the problems in this domain, in which the usage of a poor solution to solve one problem might affect the solution of other problems. To accomplish that, several problems have to be solved first, for instance background subtraction, person detection, tracking and re-identification, face recognition, and action recognition. Even though each of these problems has been researched in the past decades, they are hardly considered in a sequence, each one is usually solved individually, preventing them from being used in real surveillance systems. This talk will discuss the main concepts and problems related to smart surveillance and present the Smart Surveillance Framework, a framework developed to help researchers working on the surveillance domain.

Dr. William Robson Schwartz is a Professor in the Department of Computer Science at the Federal University of Minas Gerais, Brazil. He received his BSc and MSc degrees in Computer Science from the Federal University of Parana, Curitiba, Brazil in 2003 and 2005, respectively. He received his PhD degree in Computer Science from the University of Maryland, College Park, USA in 2010. Then, he spent one year in the Institute of Computing at the University of Campinas as a Postdoctoral researcher. He is a CNPq researcher PQ2. His research interests include Computer Vision, Surveillance, Forensics, and Biometrics, with focus on problems of face spoofing and recognition, human detection, and person re-identification. He has served as a Program Committee member for conferences such as IEEE International Conference on Automatic Face and Gesture Recognition (FG), IEEE Workshop on the Applications of Computer Vision (WACV) and Asian Conference on Computer Vision (ACCV). He coordinates several research projects sponsored by the Brazilian Ministry of Sports and funding agencies such as CNPq and FAPEMIG, focusing mainly on large scale surveillance.

Keynote 4 - Videoconference

Biometric Recognition: Some Challenges in Forensics

Anil K. Jain
Michigan State University, East Lansing, Michigan, USA
http://biometrics.cse.msu.edu

If you are like many people, navigating the complexities of everyday life depends on an array of cards and passwords that confirm your identity. But lose a card, and your ATM will refuse to give you money. Forget a password, and your own computer may balk at your command. Allow your card or passwords to fall into the wrong hands, and what were intended to be security measures can become the tools of fraud or identity theft. Biometrics—the automated recognition of people via distinctive anatomical and behavioral traits—has the potential to overcome many of these problems.

Biometrics is not a new idea. Pioneering work by several British scholars, including Fauld, Galton and Henry in the late 19th century established that fingerprints exhibit a unique pattern that persists over time. This set the stage for the development of Automatic Fingerprint Identification Systems that are now used by law enforcement agencies worldwide. The success of fingerprints in law enforcement coupled with growing concerns related to homeland security, financial fraud and identity theft has generated renewed interest in research and development in biometrics. It is, therefore, not surprising to see biometrics-based authentication permeating our society (laptops and mobile phones, border crossing, civil registration, and access to secure facilities). Despite these successful deployments, there are challenges related to biometric data acquisition, image quality, robust matching, system security and user privacy. This talk will introduce four challenging problems of particular interest in law enforcement and forensics: (i) face sketch to photo matching, (ii) latent fingerprint matching, (iii) fingerprint obfuscation and (iv) scars, marks & tattoos (SMT).

Dr. Anil K. Jain is a University Distinguished Professor in the Department of Computer Science at Michigan State University where he conducts research in pattern recognition, computer vision and biometrics. He has received Guggenheim fellowship, Humboldt Research award, Fulbright fellowship, IEEE Computer Society Technical Achievement award, IEEE W. Wallace McDowell award, IAPR King-Sun Fu Prize, and ICDM Research Award. He served as the Editor-in-Chief of the IEEE Trans. Pattern Analysis and Machine Intelligence (1991-94) and is a Fellow of ACM, IEEE, AAAS, IAPR and SPIE. Holder of eight patents in biometrics, he is the author of several books on biometrics and pattern recognition. He served as a member of the National Academies panels on Information Technology, Whither Biometrics and Improvised Explosive Devices (IED). He was a member of the Defense Science Board.

WVC 2014 at a Glance

Monday, October 6

08:00 - 09:00	Registration & Conference Check-in
09:00 – 10:00	Opening Ceremony
10:00 – 10:30	Coffee Break
10:30 – 12:00	**Keynote Speaker 1 -** Antonio Lopes Apolinário Jr.
12:00 – 14:00	Lunch
14:00 – 15:30	**Session 1**: Feature Extraction
15:30 – 16:30	Coffee Break & **Poster Session 1**
16:30 – 18:00	**Session 2**: Image Segmentation

Tuesdays, October 7

08:30 – 10:00	**Keynote Speaker 2 –** William Robson Schwartz
10:00 – 10:30	Coffee Break
10:30 – 12:00	**Keynote Speaker 3** - Francisco de Assis Zampirolli
12:00 – 14:00	Lunch
14:00 – 15:30	**Session 3**: Image Registration
15:30 – 16:00	Coffee Break & **Poster Session 2**
16:30 – 18:00	Conference Organization Meeting
20:00 – 23:00	Conference Banquet

Wednesday, October 8

08:30 – 10:00	**Session 4**: Applications in Computer Vision
10:00 – 10:30	Coffee Break
10:30 – 12:00	**Keynote Speaker 4 –** Anil K. Jain (Videoconference)
12:00 – 14:00	Lunch
14:00 – 15:30	**Session 5**: Computer Vision
15:30 – 16:30	Closing Session

WVC 2014 Time Table

	Mon, October 6	Tue, October 7	Wed, October 8
08:00 – 08:30	Registration		
08:30 – 09:00		Keynote 2	Session 4
09:00 – 09:30	Opening Session		
09:30 – 10:00			
10:00 – 10:30		Coffee Break	Coffee Break
10:30 – 11:00	Keynote 1	Keynote 3	Keynote 4
11:00 – 11:30			
11:30 – 12:00			
		Lunch	
14:00 – 14:30	Session 1	Session 3	Session 5
14:30 – 15:00			
15:00 – 15:30			
15:30 – 16:00	Coffee Break & Poster Session 1	Coffee Break & Poster Session 2	Closing Session
16:00 – 16:30			
16:30 – 17:00	Session 2	Conference Organization Meeting	
17:00 – 17:30			
17:30 – 18:00			
20:00 – 23:00		Conference Banquet	

Registration Desk

The **registration desk** is located in the entrance hall of 5R Building.

Monday	08:00 – 18:00
Tuesday	08:00 – 18:00
Wednesday	08:00 – 17:00

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Monday, October 6

08:00 **Registration**

09:00 **Opening**

10:30 **Keynote 1**
Markerless augmented reality
Antonio Lopes Apolinário Jr.

12:00 **Lunch**

Session 1: Feature Extraction

Chair: Bruno A. N. Travençolo

14:00 ***Feature description based on Mean Local Mapped Pattern***
Carolina Ferraz, Osmando Pereira Junior and Adilson Gonzaga

14:20 ***Face Recognition Using 3DLBP Method Applied to Depth Maps Obtained from Kinect Sensors***
João Cardia and Aparecido Marana

14:40 ***Grammatical Inference and SIFT for Scene Recognition***
Lucas Ribas, Marcelo Borth, Amaury Castro Jr., Wesley Gonçalves, UFMS and Hemerson Pistori

15:00 ***ECG Biometric Recognition based on fiducial features using Support Vector Machines***
Felipe Silva Teodoro, Daniel Moura Martins da Costa, Sarajane Marques Peres and Clodoaldo Moraes Lima

13:30 **Coffee Break & Poster Session 1**

Session 2: **Image Segmentation**

Chair: Mauricio C. Escarpinati

16:30 ***Weightings of Shannon Entropy's Additivity for Image Segmentation***
Celso Gallão and Paulo Rodrigues

16:50 ***Skin Color Segmentation in Face Images: An Approach for False Positive Reduction***
João Paulo Casati, Diego Moraes and Evandro Rodrigues

17:10 ***Lightness Constancy in Edge Detection: A Simple Approach using Luminance Ratios***
Hugo Vieira Neto

17:30 ***An automated method for quantifying cytoplasmic gene expression level on early Drosophila embryos***
Daniela Sousa, Maira Cardoso, Paulo Bisch, Francisco Lopes and Bruno Travençolo

Tuesday, October 7

08:30 **Keynote 2**
Smart Surveillance at Large Scale
William Robson Schwartz

10:00 **Coffee Break**

10:30 **Keynote 3**
Distance Transformation: algorithms and aplications
Francisco de Assis Zampirolli

12:00 **Lunch**

Session 3: Image Registration

Chair: Marcelo Z. Nascimento

14:00 ***Evolutionary Optimization Applied for Fine-Tuning Parameter Estimation in Optical Flow-based Methods***
Danillo Pereira, João Papa, José Delpiano, Francisco Silva, Marco Piteri and Almir Artero

14:20 ***Effect of Nonrigid Alignment Using Free-Form Deformation in Frontal Face Images***
Igor Xavier and Carlos Thomaz

14:40 ***Augmented Tattoo: a proposal of tattoo visualization in augmented reality***
Jairo Henrique Calmon, João Queiroz, Claudio Goes and Angelo Loula

14:40 ***Comparison of interpolation Methods for Digital Images***
Wesley Dourado, Aylton Pagamisse and Marco Piteri

15:30 **Coffee Break & Poster Session 2**

16:30 **Conference Organization Meeting**

Wednesday, October 8

Session 4: **Applications**

Chair: André R. Backes

08:30 ***Video-based Iris Recognition by Quasi-Dynamic Texture Analysis***
Raissa Vieira, Virgílio Langoni and Adilson Gonzaga

08:50 ***Detection, Extraction and Text Translation in Digital Images using Android Platform***
Luiz Rabachini, Marco Piteri , Almir Artero, Francisco Silva and Danillo Pereira

09:10 ***Application of texture analysis for differentiation of the greening from other pests***
Patricia Ribeiro, Maria Paiva and Lucio Jorge

09:30 ***Real-Time Hand Gesture Recognition Based on Sparse Positional Data***
Tatiana Goncalves, Felipe Peixoto de Araujo, Erickson Rangel do Nascimento and Gisele Lobo Pappa

10:00 **Coffee break**

10:30 **Keynote 4 -**Videoconference
Biometric Recognition: Some Challenges in Forensics
Anil K. Jain

12:00 **Lunch**

Session 5: **Applications**

Chair: André R. Backes

14:00 ***Self-Organizing Traffic Lights: A Pedestrian Oriented Approach***
Jessica Souza, César Ferreira, Cassio E. Santos Jr, Victor Hugo Melo and William Schwartz

14:20 ***Multiscale Detection of Convexities and Concavities Based on Local Computation of Weights***
Antonio Louro and Adilson Gonzaga

14:40 ***Investigating the use of Block-Matching 3D Denoising Algorithm to Reduce Radiation Dose in Digital Mammography***
Helder Oliveira, and Marcelo Vieira , Polyana Nunes and Lucas Borges

15:00 ***Comparison of illumination normalization techniques for face recognition***
Jonatan Patrick Margarido Oruê, Amaury Castro Jr. and Wesley Gonçalves

15:30 **Closing Session**

Poster session 1: Monday, October 6

1 ***Measure Performance of Information Visualization***
Eduardo Oliveira, Edgard Lamounier, Luciene Oliveira and Alexandre Cardoso

2 ***SDRF +: A Face Recognition System***
Adriano Marinho, Ed Bezerra and Leonardo Batista

3 ***An Efficient Sequence of Operations for License Plates Recognition***
Almir Artero, Rafael Ikeizumi, Francisco Silva, Marco Piteri and Danillo Pereira

4 ***A Real-time approach for hand-gesture recognition based on computer vision and artificial neural networks***
Luan Ramos, Flavio Vidal, Bruno Macchiavello and Alexandre Zaghetto

5 ***Face Recognition Using Complex Wavelet Transform, Clustering and Fuzzy Integral***
André Luiz Nogueira and Junior Leal do Prado

6 ***Detecção Automática da Área de Interesse Baseado no Acúmulo de Movimento***
Francisco Feitosa

7 ***Cachaça type identification using color information and computer vision***
Bruno Rodrigues, Ronaldo Costa , Rogerio Salvini and Anderson Soares

8 ***Neural Filter Applied To Fissure Detection***
Edson Cavalcanti Neto, Paulo Cortez, Valberto R. da Silva Filho, Tarique Cavalcante and Pedro Rebouças Filho

9 ***True-Motion Estimation and Compensation with Multi Temporal Block Matching Search***
André Martins and Evandro Rodrigues

10 ***Color Texture Classification under Varying Illumination***
Tamiris Negri and Adilson Gonzaga

Poster session 2: Tuesday, October 7

1 ***Evaluating LBP and CLBP in classifying of mammograms lesions***
Yan Duarte, Sidon Duarte, Leandro Neves and Marcelo Nascimento

2 ***A Quadtree approach to image segmentation: comparing Berkeley Dataset***
Paulo Fontoura Junior, Geise Santos, Jeferson Brunetta and Marcos Batista

3 ***Traffic Sign Detection and Recognition using the AdaBoost and SIFT algorithm***
Francisco Silva, Antônio Nascimento, Maria Paiva, Almir Artero, Marco Piteri and Ricardo Barbosa

4 ***3D Point Cloud from Thermal Images***
Andriy Krefer, Gustavo Borba, Mauren de Souza and Tania Centeno

5 ***An automatic facial expression recognition framework evaluated by different classifiers***
Caroline Pacheco Silva and Andrews Sobral

6 ***Reconhecimento de expressões faciais baseado em imagens estáticas utilizando análise generalizada de procrustes***
Caroline Pacheco Silva and Andrews Sobral

7 ***Roads and Trajectories Detection in Agricultural Environment Using CatadioptricVision System***
Victor Rodrigues, Vinicius Trentini, Luciano Lulio and Mário Tronco

8 ***Human Iris Segmentation on Videos Obtained via Natural Lighting from SmartPhones***
Hedenir Pinheiro, Ronaldo Costa, Renan Romero, Fabrizzio Alphonsus Alves de Melo Nunes, Leandro Oliveira and Gustavo Teodoro Laureano

9 ***Methods to Musical Notes Recognition from Sheet Music: Preliminary Results***
Caio Aoqui, Almir Artero, Marco Piteri and Danilo Eler

10 ***Improving texture classification with nonextensive statistical mechanics***
Lucas Assirati, Núbia Silva and Odemir Bruno

Notes

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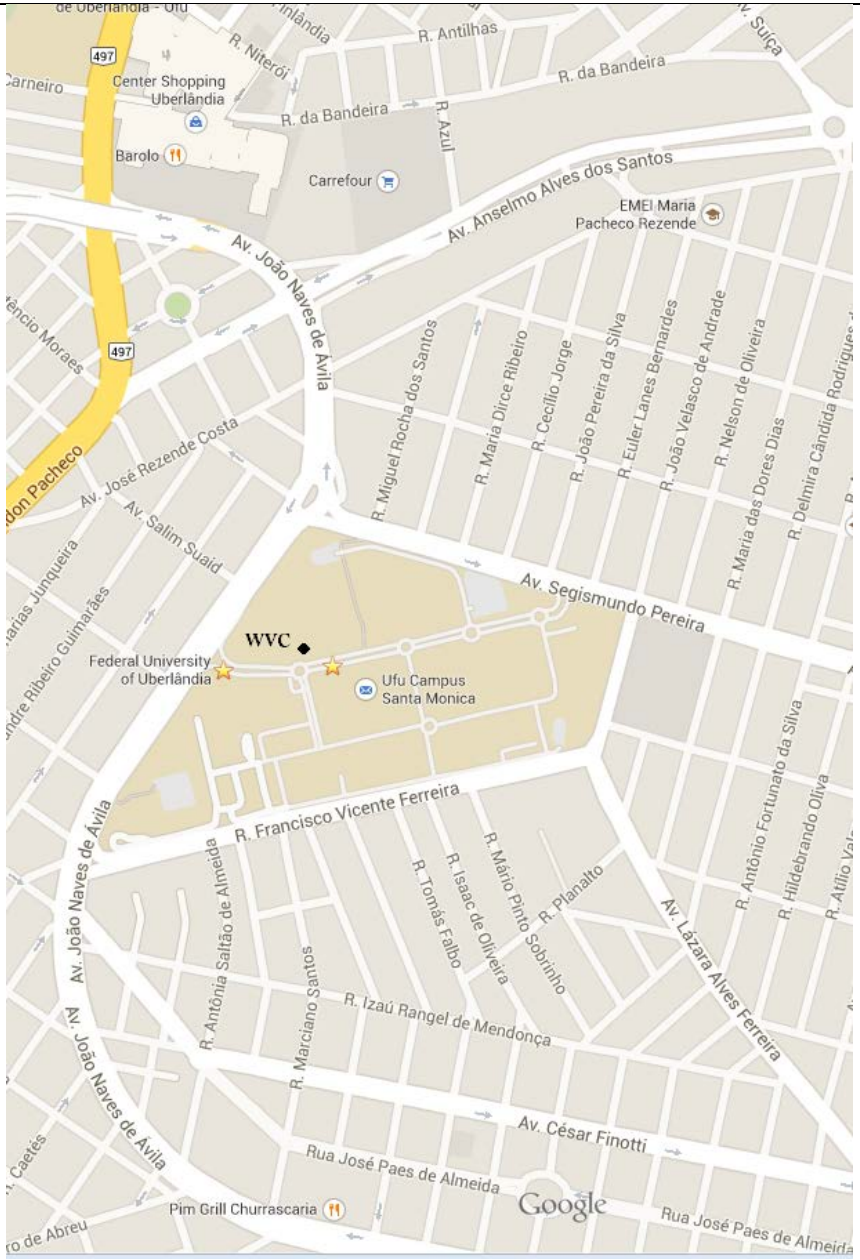
Map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