

# **IEEE Symposium on Computational Intelligence for Multimedia Signal and Vision Processing**

**(CIMSVP 2009)**

**Nashville, Tennessee, USA  
30 March – 2 April 2009**



**IEEE Catalog Number: CFP09SVP-PRT  
ISBN: 978-1-4244-2771-0**

# TABLE OF CONTENTS

## **Tutorial CIMSVP-T: Advanced Image Processing**

*Tuesday, March 31, 4:30PM-6:30PM, Room: Kingsley, Instructor: Khan M Iftekharuddin, University of Memphis, USA*

## **Session CIMSVP-1: Bio-inspired Vision**

*Wednesday, April 1, 8:30AM-10:30AM, Room: Kingsley, Chair: Yoonsuck Choe, Texas A&M University, USA*

### **A Model of Angle Selectivity in Area V2 with Local Divisive Normalization [#4] ..... 1**

Mohsen Malmir and Saeed Shiry Ghidary  
Amirkabir University of Technology, Iran

### **Tactile or Visual?: Stimulus Characteristics Determine Receptive Field Type in a Self-organizing Map Model of Cortical Development [#9] ..... 6**

Choonseog Park, Yoon H. Bai and Yoonsuck Choe  
Texas A&M University, United States; Samsung, South Korea

### **Maximizing Neural Responses Leads to Sensori-Motor Coordination of Binocular Vergence [#10] ..... 14**

Yiwen Wang and Bertram E. Shi  
Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong

### **Cortical Columns: Building Blocks for Intelligent Systems [#13] ..... 21**

Atif Hashmi and Mikko Lipasti  
University of Wisconsin - Madison, United States

### **Character recognition with two spiking neural network models on multicore architectures [#19] ..... 29**

Mohammad Bhuiyan, Rommel Jalasutram and Tarek Taha  
Clemson University, United States

## **Session CIMSVP-2: Artificial Learning for Image Processing**

*Wednesday, April 1, 11:00AM-1:00PM, Room: Kingsley, Chair: Bertram Shi, Hong Kong University of Science and Technology, Hong Kong, China*

### **A Car Detection System based on Hierarchical Visual Features [#15] ..... 35**

Fok Hing Chi Tive and Abdesselam Bouzerdoum  
University of Wollongong, Australia

**Recurrent Network-Based Face Recognition Using Image Sequences [#16] .....41**

Yong Ren, Khan M Iftakharuddin and William E White  
The University of Memphis, United States

**3D Volume Extraction of Densely Packed Cells in EM Data Stack by Forward and Backward Graph Cuts [#18] .....47**

Huei-Fang Yang and Yoonsuck Choe  
TAMU, United States

**A Hybrid Method for Facial Recognition Systems [#8] .....53**

Rerkchai Fooprateepsiri, Werasak Kurutach and Surakarn Duangphasuk  
Mahanakorn University of Technology, Thailand

**Binary Image Registration using Cellular Simultaneous Recurrent Networks [#17] .....61**

Keith Anderson, Khan Iftakharuddin, Eddie White and Paul Kim  
University of Memphis, United States

**Session CIMSVP-3: Multimedia Image Processing and Databases**

*Wednesday, April 1, 2:00PM-4:00PM, Room: Kingsley, Chair: Salim Bouzerdoum, Edith Cowan University, Australia*

**Quality-aware selection of quality factor and scaling parameters in JPEG image transcoding [#2] .....68**

Stephane Coulombe and Steven Pigeon  
Ecole de technologie superieure, Canada

**Relevance Tuning in Content-Based Retrieval of Structurally-Modeled Images using Particle Swarm Optimization [#6] .....75**

Nozomi Oka and Keisuke Kameyama  
University of Tsukuba, Japan

**Vision-Inertial Tracking System for Robust Fiducials Registration in Augmented Reality [#5] .....83**

Madjid Maidi, Ababsa Fakhreddine and Mallem Malik  
IBISC Lab. University of Evry, France

**Image Registration For Sequence of Visual Images Captured by UAV [#3] .....91**

Matthew McCartney, Saleh Zein-Sabatto and Mohan Malkani  
Tennessee State University, United States

**Panel Session CIMSVP-4: Functional principles underlying biological intelligence**

*Wednesday, April 1, 4:30PM-6:30PM, Room: Kingsley, Chair: Yoonsuck Choe, Texas A&M University, USA, and Khan Iftakharuddin, University of Memphis, USA*

**AUTHOR INDEX**