

# **2010 International Conference on Emerging Security Technologies**

**(EST 2010)**

**Canterbury, United Kingdom  
6 – 7 September 2010**



**IEEE Catalog Number: CFP1051K-PRT**  
**ISBN: 978-1-4244-7845-3**

# 2010 International Conference on Emerging Security Technologies

***EST 2010***

## Table of Contents

<b>Preface</b> .....	viii
<b>EST 2010 Organizers</b> .....	ix
<b>Keynote Talks</b> .....	xi

---

### **Nomad Biometric Authentication (Special Session)**

Nomad Biometric Authentication: Towards Mobile and Ubiquitous Person Identification.....	1
<i>Konstantinos Sirlantzis, G. Howells, Farzin Deravi, S. Hoque, P. Radu, G. McConnon, Xavier Savatier, Jean-Yves Ertaud, N. Ragot, Yohan Dupuis, and Amine Iraqui</i>	
Are Two Eyes Better than One? An Experimental Investigation on Dual Iris Recognition.....	7
<i>P. Radu, Konstantinos Sirlantzis, G. Howells, S. Hoque, and Farzin Deravi</i>	
A Survey of Point-Source Specular Reflections in Noisy Iris Images.....	13
<i>G. McConnon, Farzin Deravi, S. Hoque, Konstantinos Sirlantzis, and G. Howells</i>	
Fusion of Omnidirectional and PTZ Cameras for Face Detection and Tracking.....	18
<i>Amine Iraqui, Yohan Dupuis, Rémi Boutteau, Jean-Yves Ertaud, and Xavier Savatier</i>	
A Segmentation Method of Catadioptric Images for Gait Recognition in Unconstrained Environment.....	24
<i>Yohan Dupuis, Xavier Savatier, Jean-Yves Ertaud, and Ghaleb Hoblos</i>	
Person Identification from Spatio-temporal 3D Gait.....	30
<i>Yumi Iwashita, Ryosuke Baba, Koichi Ogawara, and Ryo Kurazume</i>	

## **Identity Detection and Verification Using Human Faces (Special Session)**

Giving Crime the ‘evo’: Catching Criminals Using EvoFIT Facial Composites .....	36
<i>Charlie D. Frowd, Peter J.B. Hancock, Vicki Bruce, Alex H. McIntyre, Melanie Pitchford, Rebecca Atkins, Andrew Webster, John Pollard, Beverley Hunt, Emma Price, Sandra Morgan, Adrian Stoika, Romeo Dughila, Sergiu Maftai, and Gabriel Sendrea</i>	
Facial Composite Production Using EFITV .....	44
<i>Agnieszka M. Lech and Robert A. Johnston</i>	
Seeing More Clearly with Glasses?: The Impact of Glasses and Technology on Unfamiliar Face Matching and Identification of Facial Composites .....	50
<i>Alex H. McIntyre, Peter J.B. Hancock, Charlie D. Frowd, and Vicki Bruce</i>	
A Comparison of Individual and Morphed Facial Composites Created Using Different Systems .....	56
<i>Josh P. Davis, Lucy Sulley, Chris Solomon, and Stuart Gibson</i>	
Prototyping Perceptions of Health for Inclusion in Facial Composite Systems .....	61
<i>David Clarke, Marianne Riggs, and Stuart Gibson</i>	
Evaluating the Application of Simple Weightless Networks to Complex Patterns .....	67
<i>B. McElroy and G. Howells</i>	

## **Information Security and Biometrics**

Biosignals for User Authentication—Towards Cognitive Biometrics? .....	71
<i>Kenneth Revett, Farzin Deravi, and Konstantinos Sirlantzis</i>	
Behaviour Profiling on Mobile Devices .....	77
<i>Fudong Li, Nathan Clarke, Maria Papadaki, and Paul Dowland</i>	
Password Security through Negative Filtering .....	83
<i>Dipankar Dasgupta and Sudip Saha</i>	
Audio-Based Indoor Health Monitoring System Using FLAC Features .....	90
<i>Jiaxing Ye, Takumi Kobayashi, and Tetsuya Higuchi</i>	

## **Modelling and Simulation**

Optimal Strategy: Domain-Specific Modelling of Dynamically Evolving Multi-dimensional Events .....	96
<i>H.J. Kadim</i>	
Utilising Mobile Wireless Network Technologies to Support an Intelligent Sensor Information System for Public Transport Safety .....	101
<i>Kieran McLaughlin and Sakir Sezer</i>	
A Systems Engineering Approach for Security System Design .....	107
<i>Ian Alston and Simon Campbell</i>	
Security Concepts for Underwater Production Control Systems .....	113
<i>Heinz Wörn, Igor Tchouchenkov, Günther Reimann, and Daniel Braun</i>	

Principled Electronic Consent Management: A Preliminary Research Framework .....	119
<i>Christian J. Bonnici and Lizzie Coles-Kemp</i>	
Learning the Consequences of Actions: Representing Effects as Feature Changes .....	124
<i>Mathias Rudolph, Manuel Mühlig, Michael Gienger, and Hans-Joachim Böhme</i>	
<b>Symposium on Robotics and Security (ROBOSEC 2010)</b>	
A Game-Theoretical Model Applied to an Active Patrolling Camera .....	130
<i>Nicola Basilico, Davide Rossignoli, Nicola Gatti, and Francesco Amigoni</i>	
Multi-agent Teams for Underwater Surveillance .....	136
<i>F. Ehlers</i>	
Supporting Search and Rescue Operations with UAVs .....	142
<i>Sonia Waharte and Niki Trigoni</i>	
Aiding Designers, Operators and Regulators to Deal with Legal and Ethical Considerations in the Design and Use of Lethal Autonomous Systems .....	148
<i>M.J. de C. Henshaw, C.E. Siemieniuch, and M.A. Sinclair</i>	
<b>Symposium on Learning and Adaptive Behaviours for Robotic Systems (LAB-RS 2010)</b>	
Attentive Monitoring Strategies in a Behavior-Based Robotic System: An Evolutionary Approach .....	153
<i>Ernesto Burattini, Alberto Finzi, Silvia Rossi, and Mariacarla Staffa</i>	
Emergent Behaviours Driven by Chaotic Dynamics .....	159
<i>Lorenzo Riano and Martin McGinnity</i>	
Learning Arm Motion Strategies for Balance Recovery of Humanoid Robots .....	165
<i>Masaki Nakada, Brian Allen, Shigeo Morishima, and Demetri Terzopoulos</i>	
Learning Flexible Full Body Kinematics for Humanoid Tool Use .....	171
<i>Matthias Rolf, Jochen J. Steil, and Michael Gienger</i>	
Tacking Reduces Bow-diving of High-Speed Unmanned Sea Surface Vehicles .....	177
<i>R. Felix Reinhart, Jochen J. Steil, Terrance L. Huntsberger, and Adrian Stoica</i>	
Vision-Based Landing of a Simulated Unmanned Aerial Vehicle with Fast Reinforcement Learning .....	183
<i>Marwan Shaker, Mark N.R. Smith, Shigang Yue, and Tom Duckett</i>	
<b>Author Index</b> .....	189