# Contents

## Oral Sessions

### Pattern Recognition and Machine Learning

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ordinal Class Imbalance with Ranking</td>
<td>3</td>
</tr>
<tr>
<td><em>Ricardo Cruz, Kelwin Fernandes, Joaquim F. Pinto Costa, Maríaa Pérez Ortiz, and Jaime S. Cardoso</em></td>
<td></td>
</tr>
<tr>
<td>Performance Metrics for Model Fusion in Twitter Data Drifts.</td>
<td>13</td>
</tr>
<tr>
<td><em>Joana Costa, Catarina Silva, Mário Antunes, and Bernardete Ribeiro</em></td>
<td></td>
</tr>
<tr>
<td>Online Learning of Attributed Bi-Automata for Dialogue Management in Spoken Dialogue Systems</td>
<td>22</td>
</tr>
<tr>
<td><em>Manex Serras, Maria Inês Torres, and Arantza Del Pozo</em></td>
<td></td>
</tr>
<tr>
<td>Log-Linear Weight Optimization Using Discriminative Ridge Regression Method in Statistical Machine Translation</td>
<td>32</td>
</tr>
<tr>
<td>Deep Convolutional Neural Networks and Maximum-Likelihood Principle in Approximate Nearest Neighbor Search</td>
<td>42</td>
</tr>
<tr>
<td>BMOG: Boosted Gaussian Mixture Model with Controlled Complexity</td>
<td>50</td>
</tr>
<tr>
<td><em>Isabel Martínez, Pedro Carvalho, Luís Corte-Real, and José Luis Alba-Castro</em></td>
<td></td>
</tr>
<tr>
<td>Measuring the Quality of Annotations for a Subjective Crowdsourcing Task</td>
<td>58</td>
</tr>
<tr>
<td><em>Raquel Justo, M. Inês Torres, and José M. Alcaide</em></td>
<td></td>
</tr>
<tr>
<td>Pre-trained Convolutional Networks and Generative Statistical Models: A Comparative Study in Large Datasets</td>
<td>69</td>
</tr>
<tr>
<td>Simple and Effective Multi-word Query Spotting in Handwritten Text Images</td>
<td>76</td>
</tr>
<tr>
<td><em>Ernesto Noya-García, Alejandro H. Toselli, and Enrique Vidal</em></td>
<td></td>
</tr>
</tbody>
</table>
## Computer Vision

Recognizing Activities of Daily Living from Egocentric Images  
*Alejandro Cartas, Juan Marín, Petia Radeva, and Mariella Dimiccoli*  
87

Strategies of Dictionary Usages for Sparse Representations  
for Pedestrian Classification  
*Carlos Serra-Toro, Ángel Hernández-Górriz, and V. Javier Traver*  
96

What Do Datasets Say About Saliency Models?  
*Xosé M. Pardo and Xosé R. Fdez-Vidal*  
104

Combining Defocus and Photoconsistency for Depth Map Estimation  
in 3D Integral Imaging  
*H. Espinos-Morato, P. Latorre-Carmona, J. Martínez Sotoca,  
F. Pla, and B. Javidi*  
114

Multi-channel Convolutional Neural Network Ensemble  
for Pedestrian Detection  
*David Ribeiro, Gustavo Carneiro, Jacinto C. Nascimento,  
and Alexandre Bernardino*  
122

Human Pose Estimation by a Series of Residual Auto-Encoders  
*M. Farrajota, João M.F. Rodrigues, and J.M.H. du Buf*  
131

Context-Aware Distance for Anomalous Human Trajectories Detection  
*Ignacio San Román, Isaac Martín de Diego, Cristina Conde,  
and Enrique Cabello*  
140

A Historical Document Handwriting Transcription End-to-end System  
*Verónica Romero, Vicente Bosch, Celio Hernández, Enrique Vidal,  
and Joan Andreu Sánchez*  
149

## Image and Signal Processing

Interactive Layout Detection  
*Lorenzo Quirós, Carlos-D. Martínez-Hinarejos, Alejandro H. Toselli,  
and Enrique Vidal*  
161

Impact of the Acquisition Time on ECG Compression-Based Biometric  
Identification Systems  
*João M. Carvalho, Susana Brãs, Jacqueline Ferreira, Sandra C. Soares,  
and Armando J. Pinho*  
169

Z-Images  
*Vincent Vigneron, Tahir Q. Syed, Leonardo T. Duarte, Elmar Lang,  
Sadaf I. Behlim, and Ana-Maria Tomé*  
177
Oversegmentation Methods: A New Evaluation. ................................. 185
   Bérengère Mathieu, Alain Crouzil, and Jean Baptiste Puel

ASARI: A New Adaptive Oversegmentation Method. .......................... 194
   Bérengère Mathieu, Alain Crouzil, and Jean Baptiste Puel

A New Normalized Supervised Edge Detection Evaluation. .................. 203
   Hasan Abdulrahman, Baptiste Magnier, and Philippe Montesinos

Medical Image

Similarity Metrics for Intensity-Based Registration Using Breast Density Maps ................................................................. 217
   Eloy García, Arnau Oliver, Yago Diez, Oliver Díaz, Xavier Lladó,
   Robert Martí, and Joan Martí

Registration of Breast Surface Data Before and After Surgical Intervention. ... 226
   Silvia Bessa and Hélder P. Oliveira

Visualization of Distinct DNA Regions of the Modern Human Relatively
to a Neanderthal Genome. .............................................................. 235
   Diogo Pratas, Morteza Hosseini, Raquel M. Silva, Armando J. Pinho,
   and Paulo J.S.G. Ferreira

Transfer Learning with Partial Observability Applied to Cervical Cancer Screening ................................................................. 243
   Kelwin Fernandes, Jaime S. Cardoso, and Jessica Fernandes

Automated Detection and Categorization of Genital Injuries Using Digital Colposcopy ............................................................... 251
   Kelwin Fernandes, Jaime S. Cardoso, and Birgitte Schmidt Astrup

On the Approximation of the Kolmogorov Complexity for DNA Sequences . . 259
   Diogo Pratas and Armando J. Pinho

Prediction of Breast Deformities: A Step Forward for Planning Aesthetic Results After Breast Surgery. ............................................. 267
   Silvia Bessa, Hooshiar Zolfagharnasab, Eduardo Pereira,
   and Hélder P. Oliveira

Applications

Staff-Line Detection on Grayscale Images with Pixel Classification ......... 279
   Jorge Calvo-Zaragoza, Gabriel Vigliensoni, and Ichiro Fujinaga
Information Extraction in Handwritten Marriage Licenses Books
Using the MGGI Methodology ................................. 287
Verónica Romero, Alicia Fornés, Enrique Vidal,
and Joan Andreu Sánchez

Leveraging Activity Indexing for Egocentric Image Retrieval .......... 295
Gabriel Oliveira-Barra, Mariella Dimiccoli, and Petia Radeva

Pupil Light Reflex Mitigation Using Non-linear Image Warping ........ 304
Tudor Nedelcu, Shejin Thavalengal, Claudia Costache,
and Peter Corcoran

Multimodal Learning for Sign Language Recognition ................... 313
Pedro M. Ferreira, Jaime S. Cardoso, and Ana Rebelo

Bayesian Approach in Kendall Shape Space for Plant Species Classification... 322
Hibat’Allah Rouahi, Riadh Mtibaa, and Ezzeddine Zagrouba

Poster Sessions

Pattern Recognition and Machine Learning

A Study of Prototype Selection Algorithms for Nearest Neighbour
in Class-Imbalanced Problems ........................................ 335
Jose J. Valero-Mas, Jorge Calvo-Zaragoza, Juan R. Rico-Juan,
and José M. Iñesta

Classification of Fiducial Markers in Challenging Conditions with SVM .... 344
Víctor Manuel Mondéjar-Guerra, Sergio Garrido-Jurado,
Rafael Muñoz-Salinas, Manuel J. Marin-Jiménez,
and Rafael Medina-Carnicer

Detecting Changes with the Robust Competitive Detector .............. 353
Leszek J. Chmielewski and Arkadiusz Orłowski

Improved Compression-Based Pattern Recognition Exploiting
New Useful Features .................................................. 363
Taichi Uchino, Hisashi Koga, and Takahisa Toda

VIBIKNet: Visual Bidirectional Kernelized Network for Visual
Question Answering .................................................... 372
Marc Bolaños, Álvaro Peris, Francisco Casacuberta, and Petia Radeva

On the Use of Spearman’s Rho to Measure the Stability
of Feature Rankings ................................................... 381
Sarah Nogueira, Konstantinos Sechidis, and Gavin Brown
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graph Embedding Through Probabilistic Graphical Model Applied to Symbolic Graphs</td>
<td>392</td>
</tr>
<tr>
<td><em>Hana Jarraya, Oriol Ramos Terrades, and Josep Lladós</em></td>
<td></td>
</tr>
<tr>
<td>Automatic Documents Counterfeit Classification Using Image Processing and Analysis</td>
<td>400</td>
</tr>
<tr>
<td><em>Rafael Vieira, Mário Antunes, Catarina Silva, and Ana Assis</em></td>
<td></td>
</tr>
<tr>
<td><strong>Computer Vision</strong></td>
<td></td>
</tr>
<tr>
<td>Feature-Based Scaffolding for Object Tracking</td>
<td>411</td>
</tr>
<tr>
<td><em>Carlos Orrite and Elena Pollo</em></td>
<td></td>
</tr>
<tr>
<td>Sign Language Gesture Recognition Using HMM</td>
<td>419</td>
</tr>
<tr>
<td><em>Zuzanna Parcheta and Carlos-D. Martínez-Hinarejos</em></td>
<td></td>
</tr>
<tr>
<td>RGB-D Computer Vision Techniques for Simulated Prosthetic Vision</td>
<td>427</td>
</tr>
<tr>
<td><em>Jesus Bermudez-Cameo, Alberto Badias-Herbera, Manuel Guerrero-Viu, Gonzalo Lopez-Nicolas, and Jose J. Guerrero</em></td>
<td></td>
</tr>
<tr>
<td>A Study on the Cardinality of Ordered Average Pooling</td>
<td>437</td>
</tr>
<tr>
<td>in Visual Recognition</td>
<td></td>
</tr>
<tr>
<td><em>Miguel Pagola, Juan I. Forcen, Edurne Barrenechea, Javier Fernández, and Humberto Bustince</em></td>
<td></td>
</tr>
<tr>
<td>VFH-Color and Deep Belief Network for 3D Point Cloud Recognition</td>
<td>445</td>
</tr>
<tr>
<td><em>Nabila Zrira, Mohamed Hannat, and El Houssine Bouyakhf</em></td>
<td></td>
</tr>
<tr>
<td>Body Shape-Based Biometric Person Recognition from mmW Images</td>
<td>453</td>
</tr>
<tr>
<td><em>Ruben Vera-Rodriguez, Ester Gonzalez-Sosa, Javier Hernandez-Ortega, and Julian Fierrez</em></td>
<td></td>
</tr>
<tr>
<td>Spacial Aliasing Artefact Detection on T1-Weighted MRI Images</td>
<td>462</td>
</tr>
<tr>
<td><em>João F. Teixeira and Hélder P. Oliveira</em></td>
<td></td>
</tr>
<tr>
<td>Sentiment Recognition in Egocentric Photostreams</td>
<td>471</td>
</tr>
<tr>
<td><em>Estefania Talavera, Nicola Strisciuglio, Nicolai Petkov, and Petia Radeva</em></td>
<td></td>
</tr>
<tr>
<td><strong>Image and Signal Processing</strong></td>
<td></td>
</tr>
<tr>
<td>An Insight on the ‘Large G, Small n’ Problem in Gene-Expression Microarray Classification</td>
<td>483</td>
</tr>
<tr>
<td><em>V. García, J.S. Sánchez, L. Cleofas-Sánchez, H.J. Ochoa-Domínguez, and F. López-Orozco</em></td>
<td></td>
</tr>
</tbody>
</table>
Neighbor Distance Ratios and Dynamic Weighting in Multi-biometric Fusion
Naser Damer, Wael Alkhatib, Andreas Braun, and Arjan Kuijper

Detecting Spatio-Temporally Interest Points Using the Shearlet Transform
Damiano Malafronte, Francesca Odone, and Ernesto De Vito

Space-Time Flexible Kernel for Recognizing Activities from Wearable Cameras
Mario Rodriguez, Carlos Orrite, and Carlos Medrano

Multi-modal Complete Breast Segmentation
Hooshiar Zolfagharnasab, João P. Monteiro, João F. Teixeira, Filipa Borlinhas, and Hélder P. Oliveira

Local Features Applied to Dermoscopy Images: Bag-of-Features versus Sparse Coding
Catarina Barata, Mário A.T. Figueiredo, M. Emre Celebi, and Jorge S. Marques

Segmentation of the Rectus Abdominis Muscle Anterior Fascia for the Analysis of Deep Inferior Epiigastric Perforators
Ricardo J. Araújo and Hélder P. Oliveira

Author Index
Pattern Recognition and Image Analysis
8th Iberian Conference, IbPRIA 2017, Faro, Portugal,
June 20-23, 2017, Proceedings
Alexandre, L.A.; Salvador Sánchez, J.; Rodrigues, J.M.F.
(Eds.)
2017, XVI, 549 p. 180 illus., Softcover
ISBN: 978-3-319-58837-7