

Contents

S2P: A Desktop Application for Fast and Easy Processing of 2D-Gel and MALDI-Based Mass Spectrometry Protein Data	1
Hugo López-Fernández, Jose E. Araújo, Daniel Glez-Peña, Miguel Reboiro-Jato, Florentino Fdez-Riverola, and José L. Capelo-Martínez	
Multi-Enzyme Pathway Optimisation Through Star-Shaped Reachable Sets	9
Stanislav Mazurenko, Jiri Damborsky, and Zbynek Prokop	
Automated Collection and Sharing of Adaptive Amino Acid Changes Data	18
Noé Vázquez, Cristina P. Vieira, Bárbara S.R. Amorim, André Torres, Hugo López-Fernández, Florentino Fdez-Riverola, José L.R. Sousa, Miguel Reboiro-Jato, and Jorge Vieira	
ROC632: An Overview	26
Catarina Santos and Ana Cristina Braga	
Processing 2D Gel Electrophoresis Images for Efficient Gaussian Mixture Modeling	35
Michal Marczyk	
Improving Document Prioritization for Protein-Protein Interaction Extraction Using Shallow Linguistics and Word Embeddings	43
Sérgio Matos	
K-Means Clustering with Infinite Feature Selection for Classification Tasks in Gene Expression Data	50
Muhammad Akmal Remli, Kauthar Mohd Daud, Hui Wen Nies, Mohd Saberi Mohamad, Safaai Deris, Sigeru Omatu, Shahreen Kasim, and Ghazali Sulong	

Classification of Colorectal Cancer Using Clustering and Feature Selection Approaches	58
Hui Wen Nies, Kauthar Mohd Daud, Muhammad Akmal Remli, Mohd Saberi Mohamad, Safaai Deris, Sigeru Omatu, Shahreen Kasim, and Ghazali Sulong	
Development of Text Mining Tools for Information Retrieval from Patents	66
Tiago Alves, Rúben Rodrigues, Hugo Costa, and Miguel Rocha	
How Can Photo Sharing Inspire Sharing Genomes?	74
Vinicius V. Cogo, Alysson Bessani, Francisco M. Couto, Margarida Gama-Carvalho, Maria Fernandes, and Paulo Esteves-Verissimo	
An App Supporting the Self-management of Tinnitus	83
Chamoso Pablo, De La Prieta Fernando, Eibenstein Alberto, Tizio Angelo, and Vittorini Pierpaolo	
Anthropometric Data Analytics: A Portuguese Case Study	92
António Barata, Lucília Carvalho, and Francisco M. Couto	
Reverse Inference in Symbolic Systems Biology	101
Beatriz Santos-Buitrago, Adrián Riesco, Merrill Knapp, Gustavo Santos-García, and Carolyn Talcott	
Skin Temperature Monitoring to Avoid Foot Lesions in Diabetic Patients	110
A. Queiruga-Dios, J. Bullón Pérez, A. Hernández Encinas, J. Martín-Vaquero, A. Martínez Nova, and J. Torreblanca González	
Multidimensional Feature Selection and Interaction Mining with Decision Tree Based Ensemble Methods	118
Lukasz Krol and Joanna Polanska	
A Normalisation Strategy to Optimally Design Experiments in Computational Biology	126
Míriam R. García, Antonio A. Alonso, and Eva Balsa-Canto	
Mitosis Detection in Breast Cancer Using Superpixels and Ensemble Classifiers	137
César A. Ortiz Toro, Consuelo Gonzalo Martín, Angel García Pedrero, Alejandro Rodriguez Gonzalez, and Ernestina Menasalvas	
Reproducibility of Finding Enriched Gene Sets in Biological Data Analysis	146
Joanna Zyla, Michal Marczyk, and Joanna Polanska	

Towards Trustworthy Predictions of Conversion from Mild Cognitive Impairment to Dementia: A Conformal Prediction Approach	155
Telma Pereira, Sandra Cardoso, Dina Silva, Alexandre de Mendonça, Manuela Guerreiro, and Sara C. Madeira	
Topological Sequence Segments Discriminate Between Class C GPCR Subtypes	164
Caroline König, René Alquézar, Alfredo Vellido, and Jesús Giraldo	
OmihR: Pipeline for Quantification of Microbiome in Human RNA-seq	173
Bruno Cavadas, Joana Ferreira, Rui Camacho, Nuno A. Fonseca, and Luisa Pereira	
Improving Prognostic Prediction from Mild Cognitive Impairment to Alzheimer's Disease Using Genetic Algorithms	180
Francisco L. Ferreira, Sandra Cardoso, Dina Silva, Manuela Guerreiro, Alexandre de Mendonça, and Sara C. Madeira	
Novel Method of Identifying DNA Methylation Fingerprint of Acute Myeloid Leukaemia	189
Agnieszka Cecotka and Joanna Polanska	
Metadata Analyser: Measuring Metadata Quality	197
Bruno Inácio, João D. Ferreira, and Francisco M. Couto	
Vascular Contraction Model Based on Multi-agent Systems	205
J.A. Rincon, Guerra-Ojeda Sol, V. Julian, and C. Carrascosa	
Study of the Epigenetic Signals in the Human Genome	213
Susana Ferreira, Vera Afreixo, Gabriela Moura, and Ana Tavares	
Cloud-Assisted Read Alignment and Privacy	220
Maria Fernandes, Jérémie Decouchant, Francisco M. Couto, and Paulo Esteves-Verissimo	
On the Role of Inverted Repeats in DNA Sequence Similarity	228
Morteza Hosseini, Diogo Pratas, and Armando J. Pinho	
An Ensemble Approach for Gene Selection in Gene Expression Data	237
José A. Castellanos-Garzón, Juan Ramos, Daniel López-Sánchez, and Juan F. de Paz	
Dissimilar Symmetric Word Pairs in the Human Genome	248
Ana Helena Tavares, Jakob Raymaekers, Peter J. Rousseeuw, Raquel M. Silva, Carlos A.C. Bastos, Armando Pinho, Paula Brito, and Vera Afreixo	

A Critical Evaluation of Automatic Atom Mapping Algorithms and Tools	257
Nuno Osório, Paulo Vilaça, and Miguel Rocha	
Substitutional Tolerant Markov Models for Relative Compression of DNA Sequences	265
Diogo Pratas, Morteza Hosseini, and Armando J. Pinho	
Biomedical Word Sense Disambiguation with Word Embeddings	273
Rui Antunes and Sérgio Matos	
Classification Tools for Carotenoid Content Estimation in <i>Manihot esculenta</i> via Metabolomics and Machine Learning	280
Rodolfo Moresco, Telma Afonso, Virgílio G. Uarrota, Bruno Bachiega Navarro, Eduardo da C. Nunes, Miguel Rocha, and Marcelo Maraschin	
UV-Vis Spectrophotometry and Chemometrics as Tools for Recognition of the Biochemical Profiles of Organic Banana Peels (<i>Musa</i> sp.) According to the Seasonality in Southern Brazil	289
Susane Lopes, Rodolfo Moresco, Luiz Augusto Martins Peruch, Miguel Rocha, and Marcelo Maraschin	
Influence of Solar Radiation on the Production of Secondary Metabolites in Three Rice (<i>Oryza sativa</i>) Cultivars	297
Eva Regina Oliveira, Ester Wickert, Fernanda Ramlov, Rodolfo Moresco, Larissa Simão, Bruno B. Navarro, Claudia Bauer, Débora Cabral, Miguel Rocha, and Marcelo Maraschin	
Cryfa: A Tool to Compact and Encrypt FASTA Files	305
Diogo Pratas, Morteza Hosseini, and Armando J. Pinho	
An Automated Colourimetric Test by Computational Chromaticity Analysis: A Case Study of Tuberculosis Test	313
Marzia Hoque Tania, K.T. Lwin, Kamal AbuHassan, Noremylia Mohd Bakhori, Umi Zulaikha Mohd Azmi, Nor Azah Yusof, and M.A. Hossain	
Characterization of the Chemical Composition of Banana Peels from Southern Brazil Across the Seasons Using Nuclear Magnetic Resonance and Chemometrics	321
Sara Cardoso, Marcelo Maraschin, Luiz Augusto Martins Peruch, Miguel Rocha, and Aline Pereira	
Erratum to: Multidimensional Feature Selection and Interaction Mining with Decision Tree Based Ensemble Methods	E1
Lukasz Krol and Joanna Polanska	
Author Index	329

11th International Conference on Practical Applications
of Computational Biology & Bioinformatics

Fdez-Riverola, F.; Mohamad, M.S.; Rocha, M.; De Paz,
J.F.; Pinto, T. (Eds.)

2017, XIV, 330 p. 97 illus., Softcover

ISBN: 978-3-319-60815-0