Applied Signal and Image Processing: Multidisciplinary Advancements

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Image and signal processing techniques are receiving increasing interest because of their numerous real-world applications. Data is now available in different forms, different wavelengths, and even in different dimensions, creating the need for novel multidisciplinary solutions for automated data processing and analysis.

**Topics Covered:**
- Automated solar feature detection
- Blind equalization for broadband access
- Data broadcast management in wireless communication
- Facial image processing in computer vision
- Moving face recognition
- Novel signal processing algorithms
- Optical character recognition
- Real-time primary image processing
- Signal processing for optical wireless communications and sensing
- Space-time signal processing

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Section 1: Multidisciplinary Advancements in Signal Processing

Chapter 1
Signal Processing for Optical Wireless Communications and Sensing
Green Roger J. (University of Warwick, UK)
Higgins Matthew (University of Warwick, UK)
Joshi Harita (University of Warwick, Coventry, UK)

Chapter 2
Application of Novel Signal Processing Algorithms for the Detection and Minimization of Skywave Interfering Signals in Loran Receivers
Mohammed Abbas (Blekinge Institute of Technology, Sweden)
Last David (University of Bangor, UK)

Chapter 3
Application of Space-Time Signal Processing and Active Control Algorithms for the Suppression of Electromagnetic Fields
Hult Tommy (Lund University, Sweden)
Mohammed Abbas (Blekinge Institute of Technology, Sweden)

Chapter 4
Data Broadcast Management in Wireless Communication:
Verma Seema (Banasthali University, India)
Kabir S. Rahman (Birla Institute of Technology and Science, India)
Kamari Savita (University of Seventh April, Libya)

Chapter 5
Blind Equalization for Broadband Access using the Constant Modulus Algorithm
Leeon Mark S. (University of Warwick, UK)
Iwu Eugene (DHL Supply Chain, UK & Ireland Consumer Division, Solstice House, 251)

Chapter 6
Field Asymmetric Ion Mobility Spectrometry Based Plant Disease Detection:
Zhang F. (School of Engineering, University of Warwick, UK)
Ghaflafti Reza (School of Engineering, University of Warwick, UK)
Iliescu D. (School of Engineering, University of Warwick, UK)
Hines E. (School of Engineering, University of Warwick, UK)
Leeon M. (School of Engineering, University of Warwick, UK)
Napier R. (Warwick HRI, University of Warwick, UK)

Chapter 7
The Analysis of Plant’s Organic Volatiles Compounds with Electronic Nose and Pattern Recognition Techniques
Ghaflafti Reza (School of Engineering, University of Warwick, UK)
Zhang Fu (School of Engineering, University of Warwick, UK)
Iliescu Daciana (School of Engineering, University of Warwick, UK)
Hines Eor (School of Engineering, University of Warwick, UK)
Leeon Mark (School of Engineering, University of Warwick, UK)
Napier Richard (Warwick HRI, University of Warwick, UK)

Chapter 8
Advanced Signal Processing Techniques in Non-Destructive Testing
Al-Arabi A. (University of Liverpool, UK)
Al-Nasrawi W. (University of Liverpool, UK)

Chapter 9
Low Frequency Array (LOFAR) Potential and Challenges
Bestum M.J. (ASTRON, The Netherlands & University of Twente, The Netherlands)
Gunst A.W. (ASTRON, The Netherlands)
Boonstra A.J. (ASTRON, The Netherlands)

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Fang Hui (Swansea University, UK)
Costen Nicolas (Manchester Metropolitan University, UK)
Gratek Phil (Swansea University, UK)
Chen Min (Swansea University, UK)

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Facial Image Processing in Computer Vision
Yap Moi Hoon (University of Bradford, UK)
Ugul Hassan (University of Bradford, UK)

Section 2: Multidisciplinary Advancements in Image Processing

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Dudok de Witt T. (LPC2E, CNRS and University of Orléans, France)

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Automated Solar Feature Detection for Space Weather Applications
Perez-Suarez David (Trinity College Dublin, Ireland)
Higgins Paul A. (Trinity College Dublin, Ireland)
Bloomfield D. Shaun (Trinity College Dublin, Ireland)
McAteer R.T. James (Trinity College Dublin, Ireland)
Krista Larissa D. (Trinity College Dublin, Ireland)
Byrne Jason P. (Trinity College Dublin, Ireland)
Gallagher Peter T. (Trinity College Dublin, Ireland)

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Image Processing Applications Based on Texture and Fractal Analysis
Dobrescu Raluca (Politehnica University of Bucharest, Romania)
Popescu Dan (Politehnica University of Bucharest, Romania)

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Real-Time Primary Image Processing
Dobrescu Raluca (Politehnica University of Bucharest, Romania)
Popescu Dan (Politehnica University of Bucharest, Romania)

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Elbita A. (Bradford University, UK)
Qahwaji Rami (Bradford University, UK)
Ipsen S. (Bradford University, UK)
Ahmed T. Y. (Bradford University, UK)
Ramaesh K. (Bradford University, UK)
Colak T. (Bradford University, UK)

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Al-Abri F. (Loughborough University, UK)
Ediriisinghe E.A. (Loughborough University, UK)
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Towards Rapid 3D Reconstruction using Conventional X-Ray for Intrusive Orthopaedic Applications
Prakoonwit Simant (University of Reading, UK)

Chapter 19
Arabic Optical Character Recognition:
Al-Muhtaseb Husni (King Fahd University of Petroleum and Minerals, Saudi Arabia)
Qahwaji Rami (University of Bradford, UK)