3rd Workshop on

6 - 9 June 2011, Lisbon, Portugal

Workshop Program
### Monday, June 6
- **Morning**: Public PhD dissertation of Alberto Villa
- **Afternoon**: Public PhD dissertation of Jun Li
- **All day**: Registration
- **18:00 – 20:00**: Icebreaker

### Tuesday, June 7
- **07:30 - 08:30**: Registration
- **08:30 - 09:00**: Opening of the workshop
- **09:00 - 10:00**: Plenary 1
- **10:00 - 11:40**:
  - **tue-o-1-a**: Recent advances in Spectral Unmixing of Hyperspectral Data (1)
  - **tue-o-1-b**: Application of Hyperspectral imaging on Agricultural and Ecological Systems
- **11:40 - 12:10**: Coffee break
- **12:10 - 13:10**: Panel discussion
- **13:10 - 14:30**: Lunch break
- **14:30 - 16:10**:
  - **tue-o-2-a**: Astrophysics
  - **tue-o-2-b**: Machine Learning for Analysis of Hyperspectral Data (1)
- **16:10 - 16:40**: Coffee break
- **16:40 - 18:40**:
  - **tue-o-3-a**: Hyperspectral Data Processing for Defense and Security
  - **tue-o-3-b**: High performance computing and compression

### Wednesday, June 8
- **09:00 - 10:00**: Plenary 2
- **10:00 - 11:40**:
  - **wed-o-1-a**: Applications: industry and environment
  - **wed-o-1-b**: Hyperspectral image processing
- **11:40 - 12:10**: Coffee break
- **12:10 - 13:30**:
  - **wed-p**: Hyperspectral data processing, sensor design, calibration
- **13:30 - 14:30**: Lunch break
- **14:30 - 16:10**:
  - **wed-o-2-a**: Classification
  - **wed-o-2-b**: Applications: forestry and oceans
- **16:10 - 16:40**: Coffee break
- **16:40 - 18:20**:
  - **wed-o-3-a**: Physical modeling
  - **wed-o-3-b**: Machine Learning for Analysis of Hyperspectral Data
- **20:00 – 23:00**: Conference Banquet

### Thursday, June 9
- **09:00 - 10:00**: Plenary 3
- **10:00 - 11:40**:
  - **thu-o-1-a**: Sensor Design and Calibration
  - **thu-o-1-b**: Recent advances in Spectral Unmixing of Hyperspectral Data
- **11:40 - 12:10**: Coffee break
- **12:10 - 13:30**: Applications
- **13:30 - 14:30**: Lunch break
- **14:30 - 16:10**:
  - **thu-o-2-a**: Hyperspectral methods for difficult target detection (1)
  - **thu-o-2-b**: Physical and Statistical Approaches Bridging the Gap
- **16:10 - 16:40**: Coffee break
- **16:40 - 18:20**:
  - **thu-o-3-a**: Hyperspectral methods for difficult target detection (2)
  - **thu-o-3-b**: Unmixing and dimension reduction
07:30 - 08:30 Registration

08:30 - 09:00 Opening of the workshop

09:00 - 10:00 Plenary 1

10:00 - 11:40 Session tue-o-1-a
    Recent advances in Spectral Unmixing of Hyperspectral Data (1)
    Session Chairs: tba
tba

    Session tue-o-1-b
    Application of Hyperspectral imaging on Agricultural and Ecological Systems
    Session Chairs: tba
tba

11:40 - 12:10 Coffee break

12:10 - 13:10 Panel discussion

13:10 - 14:30 Lunch break

14:30 - 16:10 Session tue-o-2-a
    Astrophysics
    Session Chairs: tba
tba

    Session tue-o-2-b
    Machine Learning for Analysis of Hyperspectral Data (1)
    Session Chairs: tba
tba

16:10 - 16:40 Coffee break

16:40 - 18:40 Session tue-o-3-a
    Hyperspectral Data Processing for Defense and Security
    Session Chairs: tba
tba

    Session tue-o-3-b
    High performance computing and compression
    Session Chairs: tba
tba
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10:00 - 11:40  Session tue-o-1-a

Recent advances in Spectral Unmixing of Hyperspectral Data (1)
Session Chairs: tba  tba

10:00–10:20  SPECTRAL UNMIXING USING DISTANCE GEOMETRY
Rob Heylen and Paul Scheunders

10:20–10:40  JOINT SPECTRAL CLASSIFICATION AND UNMIXING USING ADAPTIVE PIXEL NEIGHBORHOODS
Olivier Eches, Jon Atli Benediktsson, Nicolas Dobigeon and Jean-Yves Tourneret

10:40–11:00  ON THE INTEREST OF REGULARIZED NMF ALGORITHMS VERSUS GEOMETRICAL ALGORITHMS
Mireille Guillaume, Alexis Huck, Weishi Chen, Guillaume Oller and Manuel Grizonnet

11:00–11:20  BILINEAR MODELS FOR NONLINEAR UNMIXING OF HYPERSPECTRAL IMAGES
Yoann Altmann, Nicolas Dobigeon and Jean-Yves Tourneret

11:20–11:40  INTERCOMPARISON AND VALIDATION OF TECHNIQUES FOR SPECTRAL UNMIXING OF HYPERSPECTRAL IMAGES: A PLANETARY CASE STUDY
Sylvain Doute, Xavier Ceamanos, Bin Luo, Frédéric Schmidt, Gwenaël Jouannic and Jocelyn Chanussot

Session tue-o-1-b
Application of Hyperspectral imaging on Agricultural and Ecological Systems
Session Chairs: tba  tba

10:00–10:20  USING HYPERSPECTRAL REMOTE SENSING DATA FOR RETRIEVING TOTAL CANOPY CHLOROPHYLL AND NITROGEN CONTENT
Jan Clevers and Lammert Kooistra

10:20–10:40  REGULARIZATION OF DISCRIMINANT ANALYSIS FOR THE STUDY OF BIODIVERSITY IN HUMID TROPICAL FORESTS
Jean-Baptiste Feret, Gregory P. Asner and Stephane Jacquemoud

10:40–11:00  PORTABLE HYPERSPECTRAL IMAGING SYSTEM FOR MONITORING THE EFFICACY OF SANITATION PROCEDURES IN PRODUCE PROCESSING PLANTS
Alan Lefcourt, Micheal Wiederoder, Nancy Liu, Moon Kim, Y. Martin Lo and Kevin Chao

11:00–11:20  NARROWBAND SPECTRAL INDICES FOR THE ESTIMATION OF CHLOROPHYL ALONG A PRECIPITATION GRADIENT
Reza Amiri, Jason Beringer and Peter Isaac

11:20–11:40  APPLICATION OF AIRBORNE HYPERSPECTRAL IMAGERY TO ESTIMATING FRUIT YIELD IN CITRUS
Xujun Ye and Kenshi Sakai

11:40 - 12:10  Coffee break

12:10 - 13:10  Panel discussion
13:10 - 14:30 Lunch break

14:30 - 16:10 Session Tue-o-2-a
Astrophysics
Session Chairs: tba
tba

14:30-14:50 RESTORATION OF HYPERSPECTRAL ASTRONOMICAL DATA FROM INTEGRAL FIELD SPECTROGRAPH
Ferréol Soulez, Eric Thiébaut, Sébastion Bongard and Roland Bacon

14:50-15:10 SPARSITY-BASED SPATIAL-SPECTRAL RESTORATION OF MUSE ASTROPHYSICAL HYPERSPECTRAL DATA CUBES
Sébastien Bourguignon, Hervé Carfantan, Eric Slezak and David Mary

15:10-15:30 EXTRACTION OF STELLAR SPECTRA FROM DENSE FIELDS IN HYPERSPECTRAL MUSE DATA CUBES USING NON-NEGATIVE MATRIX FACTORIZATION
Inès Meganem, Yannick Deville, Shahram Hosseini, Hervé Carfantan and Moussa Sofiane Karoui

15:30-15:50 PSF ESTIMATION OF HYPERSPECTRAL DATA ACQUISITION SYSTEM FOR GROUND-BASED ASTROPHYSICAL OBSERVATIONS
Emma Villedeneuve, Hervé Carfantan and Denis Serre

15:50-16:10 EXPLAINING MID-INFRARED ASTRONOMICAL SPECTRA: NONNEGATIVE MATRIX FACTORIZATION VS THEORETICAL SPECTROSCOPIC DATABASE
Olivier Berné

Session Tue-o-2-b
Machine Learning for Analysis of Hyperspectral Data (1)
Session Chairs: tba
tba

14:30-14:50 SEMI-SUPERVISED HYPERSPECTRAL IMAGE CLASSIFICATION USING A NEW (SOFT) SPARSE MULTINOMIAL LOGISTIC REGRESSION MODEL
Jun Li, Jose Bioucas-Dias and Antonio Plaza

14:50-15:10 ROBUST CLASSIFICATION OF THE NUTRITION STATE IN CROP PLANTS BY HYPERSPECTRAL IMAGING AND ARTIFICIAL NEURAL NETWORKS
Andreas Backhaus, Felix Bollenbeck and Udo Seiffert

15:10-15:30 ON THE VALIDATION OF A SPECTRAL/SPATIAL CBIR SYSTEM FOR HYPERSPECTRAL IMAGES
Miguel Ángel Veganzones and Manuel Grana

15:30-15:50 EXTENDED MORPHOLOGICAL PROFILES USING AUTO-ASSOCIATIVE NEURAL NETWORKS FOR HYPERSPECTRAL DATA CLASSIFICATION
Giorgio Licciardi, Prashanth Reddy Marpu, Jon Atl Benediktsson and Jocelyn Chanussot

15:50-16:10 RAPID ESTIMATION OF POINT SOURCE CHEMICAL POLLUTANT COVERAGE IN CATASTROPHE SITUATION USING HIERARCHICAL BINARY DECISION TREE ENSEMBLE AND PROBABILITY MEMBERSHIP VALUE BASED ENSEMBLE APPROACHES
Karoly Livius Bakos, Paolo Gamba and Peter Burai

16:10 - 16:40 Coffee break
16:40 - 18:40  Session tue-o-3-a  
Hyperspectral Data Processing for Defense and Security  
Session Chairs:  tba  tba  

16:40-17:00  AN ANOMALY DETECTION ARCHITECTURE BASED ON A DATA-ADAPTIVE DENSITY ESTIMATION  
Tiziana Veracini, Stefania Matteoli, Marco Diani and Giovanni Corsini  

17:00-17:20  SUB-PIXEL TARGET SPECTRA ESTIMATION AND DETECTION USING FUNCTIONS OF MULTIPLE INSTANCES  
Alina Zare, Paul Gader, Jeremy Bolton, Seniha Yuksel, Thierry Dubroca, Ryan Close and Rolf Hummel  

17:20-17:40  DIRECTIONAL SEGMENTED MATCHED FILTER FOR HYPERSPECTRAL IMAGES  
Peter Bajorski  

17:40-18:00  A GRAPH THEORETIC APPROACH TO ANOMALY DETECTION IN HYPERSPECTRAL IMAGERY  
David Messinger and James Albano  

18:00-18:20  EVALUATION OF THE SUB-PIXEL PERFORMANCE OF ANOMALY DETECTOR  
Dirk Borghys, Christiaan Perneel, Véronique Achard and Ingebjørg Kasen  

18:20-18:40  JOINT ESTIMATION OF OBJECTS GEOMETRY AND MATERIAL LABELS FROM SINGLE VIEW POLARIZED HYPERSPECTRAL IMAGERY  
Firooz Sadjadi and Farzad Sadjadi  

Session tue-o-3-b  
High performance computing and compression  
Session Chairs:  tba  tba  

16:40-17:00  COMPRESSION-BASED UNSUPERVISED CLUSTERING OF SPECTRAL SIGNATURES  
Daniele Cerra, Jakub Bieniarz, Janja Avbelj, Peter Reinartz and Rupert Mueller  

17:00-17:20  FAST DECONVOLUTION OF LARGE FLUORESCENCE HYPERSPECTRAL IMAGES  
Simon Henrot, Charles Soussen and David Brie  

17:20-17:40  NOVEL ARCHITECTURES FOR REAL-TIME MATCHING IN HYPERSPECTRAL IMAGES  
Pablo Horstrand, Sebastian Lopez, Gustavo Callico, Jose Lopez and Roberto Sarmiento  

17:40-18:00  HYPERSPECTRAL IMAGE COMPRESSION BASED ON TUCKER DECOMPOSITION AND WAVELET TRANSFORM  
Azam Karami, Mehran Yazdi and Grégoire Mercier  

18:00-18:20  EFFICIENT SPECTRAL ENDMEMBER DETECTION ONBOARD THE EO-1 SPACECRAFT  
Ben Bornstein, David Thompson, Steve Chien, Rebecca Castaño and Brian Bue  

18:20-18:40  FAST ALGORITHM FOR EXPLORING AND COMPRESSING OF LARGE HYPERSPECTRAL IMAGES  
Sergey Kucheryavskiy
09:00 - 10:00 Plenary 2

10:00 - 11:40 Session wed-o-1-a
  Applications: industry and environment
  Session Chairs: tba

  Session wed-o-1-b
  Hyperspectral image processing
  Session Chairs: tba

11:40 - 12:10 Coffee break

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  Hyperspectral data processing, sensor design, calibration

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  Session wed-o-2-b
  Applications: forestry and oceans
  Session Chairs: tba

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16:40 - 18:20 Session wed-o-3-a
  Physical modeling
  Session Chairs: tba

  Session wed-o-3-b
  Machine Learning for Analysis of Hyperspectral Data
  Session Chairs: tba
09:00 - 10:00  Plenary 2

10:00 - 11:40  Session wed-o-1-a
Applications: industry and environment
Session Chairs:  tba  tba

10:00–10:20  HYPERSPECTRAL IMAGING BASED PLATFORMS FOR PARTICULATE SOLIDS CHARACTERIZATION, INSPECTION AND QUALITY CONTROL. CASE STUDIES: APPLICATION TO POLYOLEFINS RECYCLING
Silvia Serranti, Aldo Gargiulo and Giuseppe Bonifazi

10:20–10:40  INFRARED REFLECTANCE HYPERSPECTRAL FEATURES OF ATHABASCA OIL SAND ORE AND FROTH
Benoit Rivard, Jilu Feng, Vivek Bhushan and Michael Lipsett

10:40-11:00  COMPARISON OF NEAR INFRARED AND RAMAN HYPERSPECTRAL UNMIXING PERFORMANCES FOR CHEMICAL IDENTIFICATION OF PHARMACEUTICAL TABLETS
Marta B. Lopes, José Bioucas Dias, Jean-Claude Wolff, Nisha Mistry, John Warrack and Mário Figueiredo

11:00-11:20  ITERATIVE SIGNATURE SUPPRESSION FOR DETECTION AND IDENTIFICATION OF GAS PLUME CONSTITUENTS
Caroline S. Turcotte, François Bouffard and Eldon Puckrin

Csaba Lenart, Peter Burai, Amer Smailbegovic, Tibor Biro, Zsolt Katona and Roko Andricevic

Session wed-o-1-b
Hyperspectral image processing
Session Chairs:  tba  tba

10:00–10:20  A STRUCTURE TENSOR FOR HYPERSPECTRAL IMAGES
Maider Marin-Mcgee and Miguel Velez-Reyes

10:20–10:40  HYPERSPECTRAL CHANGE DETECTION WITH IR-MAD AND INITIAL CHANGE MASK
Prashanth Marpu, Paolo Gamba and Jon Atli Benediktsson

10:40-11:00  ON THE INCORPORATION OF SPATIAL INFORMATION TO ENDMEMBER IDENTIFICATION ALGORITHMS WITHOUT THE PURE PIXEL ASSUMPTION
Gabriel Martin, Javier Plaza and Antonio Plaza

11:00-11:20  TECHNIQUES FOR THE GRAPH REPRESENTATION OF SPECTRAL IMAGERY
Ryan Mercovich, James Albano and David Messinger

11:20-11:40  DENSE REGISTRATION OF PUSH BROOM HYPERSPECTRAL IMAGERIES
Dong Guo, Teck Khim Ng and Sze Kim Pang

11:40 - 12:10  Coffee break
12:10 - 13:30  Session wed-p
Hyperspectral data processing, sensor design, calibration

01  HYPERSPECTRAL, MULTISPECTRAL, AND PANCHROMATIC DATA FUSION BASED ON COUPLED NON-NEGATIVE MATRIX FACTORIZATION
Naoto Yokoya, Takehisa Yairi and Akira Iwasaki

02  THE EFFECT OF NOISE WHITENING ON METHODS FOR DETERMINING THE INTRINSIC DIMENSION OF A HYPERSPECTRAL IMAGE
Kerry Cawse, Amandine Robin and Michael Sears

03  SPECTRAL-SPATIAL CLASSIFICATION OF HYPERSPECTRAL IMAGES USING HIERARCHICAL OPTIMIZATION
Yuliya Tarabalka and James C. Tilton

04  IMPACT OF SPECTRAL CURVATURE ON AT-SURFACE REFLECTANCE ACCURACY AND INFORMATION EXTRACTION TECHNIQUES
H Peter White

05  MULTI-SOURCE IMAGE CLASSIFICATION USING COLOR ATTRIBUTE PROFILES
Zahid Mahmood, Guy Thoonen, Valerie De Witte and Paul Scheunders

06  A COMPARATIVE STUDY OF SPECTRAL DETECTORS
Karmon Vongsy and Michael Mendenhall

07  USING PRINCIPAL COMPONENT ANALYSIS FOR ENDMEMBER EXTRACTION
Charoula Andreou and Vassilia Karathanassi

08  EXTRACTING SPATIALLY AND SPECTRALLY COHERENT REGIONS FROM IMAGES
Farhana Bandukwala

09  FUZZY CLUSTERING OF HYPERSPECTRAL DATA BASED ON PARTICLE SWARM OPTIMIZATION
Farhad Samadzadegan and Amin Alizadeh Naeini

10  A MULTIVARIATE WAVELET-PCA DENOISING-FILTER FOR HYPERSPECTRAL IMAGES
Felix Bollenbeck, Andreas Backhaus and Udo Seiffert

11  CLASS DEPENDENT COMPRESSION-PROJECTION PRINCIPAL COMPONENT ANALYSIS FOR HYPERSPECTRAL IMAGE RECONSTRUCTION
Wei Li, Saurabh Prasad, James Fowler and Lori Bruce

12  RECONSTRUCTING AND SEGMENTING HYPERSPECTRAL IMAGES FROM COMPRESSED MEASUREMENTS
Qiang Zhang, Robert Plemmons, David Kittle, David Brady and Sudhakar Prasad

13  COMPARISON OF LOCAL ANOMALY DETECTION ALGORITHMS BASED ON STATISTICAL HYPOTHESIS TESTS
Alexis Huck, Mireille Guillaume, Guillaume Oller and Manuel Grizonnet

14  UNSUPERVISED JOINT BAYESIAN DECOMPOSITION OF A SEQUENCE OF PHOTON SPECTRA
Vincent Mazet, Sylvain Faisan, Antoine Masson, Marc-André Gaveau and Lionel Poisson

15  SPECTRAL QUALITY INDICATORS FOR HYPERSPECTRAL DATA
Anna Brook and Eyal Ben-Dor
16 AN UPGRADE OF THE CNR IMAA EARTH-OBSERVING FACILITIES: OVERVIEW OF THE TASI-600 HYPERSPECTRAL THERMAL SPECTROMETER
Stefano Pignatti, Vincenzo Lapenna, Angelo Palombo, Simone Pascucci, Nicola Pergola and Vincenzo Cuomo

17 HYPXIM – A HYPERSPECTRAL SATELLITE DEFINED FOR SCIENCE, SECURITY AND DEFENCE USERS
Sylvain Michel, Philippe Gamet and Marie-José Lefevre

18 BENEFITS OF SIGNAL-DEPENDENT NOISE REDUCTION FOR SPECTRAL ANALYSIS OF DATA FROM ADVANCED IMAGING SPECTROMETERS
Bruno Aiazzi, Luciano Alparone, Stefano Baronti, Francesco Butera, Leandro Chiarantini and Massimo Selva

19 OPTICAL DESIGN OF A COMPACT DUAL BAND INFRARED IMAGING SPECTROMETER
Alessio Taiti, Francesco Butera and Mauro Melozzi

13:10 - 14:30 Lunch break

14:30 - 16:10 Session wed-o-2-a
Classification
Session Chairs: tba

14:30-14:50 MANIFOLD ALIGNMENT FOR CLASSIFICATION OF MULTI-TEMPORAL HYPERSPECTRAL DATA
Hsiuhan Lexie Yang and Melba M. Crawford

14:50-15:10 MULTICLASS ORDERING FOR FILTERING AND CLASSIFICATION OF HYPERSPECTRAL IMAGES
Santiago Velasco-Forero and Jesus Angulo

15:10-15:30 SEMI-SUPERVISED HYPERSPECTRAL PIXEL CLASSIFICATION USING INTERACTIVE LABELING
Olga Rajadell Rojas, Pedro Garcia-Sevilla, Robert P.W. Duin and Viet C.Dinh

15:30-15:50 A MULTI-MODAL PATTERN CLASSIFICATION FRAMEWORK FOR HYPERSPECTRAL IMAGE ANALYSIS
Wei Li, Saurabh Prasad, James Fowler and Lori Bruce

15:50-16:10 IMPROVED DETECTION AND CLUSTERING OF HYPERSPECTRAL IMAGE DATA BY PREPROCESSING WITH A EUCLIDEAN DISTANCE TRANSFORM
Ariel Schlamm and David Messinger

Session wed-o-2-b
Applications: forest ry and oceans
Session Chairs: tba

14:30-14:50 HELICOPTER HIGH RESOLUTION IMAGING SPECTROSCOPY: MAPPING SPECIES VARIATION
David Goodenough, Geoff Quinn, K. Olaf Niemann, Hao Chen and Diana Parton

14:50-15:10 TREE SPECIES CLASSIFICATION IN MIXED BALTIC FOREST
Aivars Lorencs, Ints Mednieks, Juris Sinica - Sinavskis and Gatis Erins
15:10-15:30  REMOTE SENSING OF FORESTED ENVIRONMENTS: THE EFFECTS OF A RADIOMETRICALLY POROUS AND STRUCTURALLY COMPLEX SURFACE.  
K. Olaf Niemann, David Goodenough, Rafael Loos, Geoff Quinn and Fabio Visintini

15:30-15:50  SPECTRAL RANGE SENSITIVITY ANALYSIS TO IMPROVE HYPERSPECTRAL REMOTE SENSING OF PHYTOPLANKTON BIODIVERSITY IN THE OCEAN  
Elena Torrecilla, Jaume Piera, Astrid Bracher, Bettina B. Taylor and Anja Bernhardt

15:50-16:10  CHANGES IN MICRO-ALGAL PIGMENT CONTENT AND OPTICAL ABSORPTION CROSS SECTION WITH GROWTH IRRADIANCE, DETECTED BY HYPERSPECTRAL RADIOMETRIC ANALYSES  
Vona Méléder, Martin Laviale, Bruno Jesus, Jean Luc Mouget, Farzaneh Kazemipour, Patrick Launeau and Laurent Barillé

16:10 - 16:40  Coffee break

16:40 - 18:20  Session wed-o-3-a  
Physical modeling  
Session Chairs:  
tba  
tba

16:40-17:00  EMISSIVITY RETRIEVALS FROM AIRBORNE INFRARED HYPERSPECTRAL IMAGES COUPLED WITH VISIBLE TO SWIR HYPERSPECTRAL IMAGES  
Veronique Achard, Jean Bourrely and Patrice Carle

17:00-17:20  COMPARISON OF RADIATIVE TRANSFER MODEL INVERSIONS TO ESTIMATE VEGETATION PHYSIOLOGICAL STATUS BASED ON HYPERSPECTRAL DATA  
Sebastian Preidl and Daniel Doktor

17:20-17:40  FAST MONTE CARLO-ASSISTED SIMULATION OF HYPERSPECTRAL EARTH BACKGROUNDS  
Steven Adler-Golden, Steven Richtsmeier, Alexander Berk and James Duff

17:40-18:00  MODEL PERFORMANCE METRICS FOR MULTIVARIATE IMAGE ANALYSIS  
Aoife Gowen and James Burger

18:00-18:20  DERIVING OPTICAL CONSTANTS OF VOLCANISH ASH USING MEASUREMENTS FROM THE PLANETARY EMISSIVITY LABORATORY AT DLR  
Joern Helbert, Alessandro Maturilli, Ted Roush and Hermann Mannstein

16:40 - 18:20  Session wed-o-3-b  
Machine Learning for Analysis of Hyperspectral Data (2)  
Session Chairs:  
tba  
tba

16:40-17:00  AN EVALUATION OF CLASS KNOWLEDGE TRANSFER FROM SYNTHETIC TO REAL HYPERSPECTRAL IMAGERY  
Brian Bue, Erzsebet Merenyi and Beata Csatho

17:00-17:20  SUPPORT VECTOR MACHINES, IMPORT VECTOR MACHINES AND RELEVANCE VECTOR MACHINES FOR HYPERSPECTRAL CLASSIFICATION - A COMPARISON  
Andreas Christian Braun, Uwe Weidner and Stefan Hinz

17:20-17:40  FUNCTIONAL RELEVANCE LEARNING IN LEARNING VECTOR QUANTIZATION FOR HYPERSPECTRAL DATA  
Marika Kästner and Thomas Villmann
17:40-18:00 A COMPARATIVE ASSESSMENT OF SEVERAL PROCESSING CHAINS FOR
HYPERSPECTRAL IMAGE CLASSIFICATION: WHAT FEATURES TO USE?
Inmaculada Dopido, Alberto Villa, Antonio Plaza and Paolo Gamba

18:00-18:20 METRIC LEARNING FOR HYPERSPECTRAL IMAGE SEGMENTATION
Brian Bue, David Thompson, Martha Gilmore and Rebecca Castano
Thursday, June 9, 2011
Overview

09:00 - 10:00 Plenary 3

10:00 - 11:40 Session thu-o-1-a
Sensor Design and Calibration
Session Chairs: tba
tba

Session thu-o-1-b
Recent advances in Spectral Unmixing of Hyperspectral Data
Session Chairs: tba
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11:40 - 12:10 Coffee break

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Hyperspectral methods for difficult target detection (1)
Session Chairs: tba
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Session thu-o-2-b
Physical and Statistical Approaches Bridging the Gap
Session Chairs: tba
tba

16:10 - 16:40 Coffee break

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Hyperspectral methods for difficult target detection (2)
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Session thu-o-3-b
Unmixing and dimension reduction
Session Chairs: tba
tba
09:00 - 10:00  Plenary 3

10:00 - 11:40  Session thu-o-1-a
Sensor Design and Calibration
Session Chairs:  tba  tba

10:00–10:20  SUPERVISED VICARIOUS CALIBRATION (SVC) OF HYPERSPECTRAL REMOTE-SENSING DATA
Anna Brook and Eyal Ben-Dor

10:20–10:40  DEVELOPMENT OF COMPACT AND LOW DISTORTION IMAGING SPECTROMETER FOR MARS MISSIONS AND AIRBORNE AERIAL VEHICLE
Shen-En Qian, Michael Maszkiewicz, Allan Hollinger, Eric Thibeault, Eric Martin, Jean-Pierre Ardouin and Alexandre Jouan

10:40-11:00  A FIELD IMAGING SPECTROMETER SYSTEM
Lifu Zhang, Jinnian Wang, Junyong Fang, Yongqi Xue and Qingxi Tong

11:00-11:20  HYPXIM: A NEW HYPERSPECTRAL SENSOR COMBINING SCIENCE/DEFENCE APPLICATIONS
Xavier Briottet, Rodolphe Marion, Véronique Carrère and Stéphane Jacquemoud

Florent Prel, Louis Moreau, Stephane Lantagne, Christian Vallieres, Claude Roy and Luc Levesque

**Session thu-o-1-b**
Recent advances in Spectral Unmixing of Hyperspectral Data (2)
Session Chairs:  tba  tba

10:00–10:20  A NEW SEMI-SUPERVISED ALGORITHM FOR HYPERSPECTRAL IMAGE CLASSIFICATION BASED ON SPECTRAL UNMIXING CONCEPTS
Alberto Villa, Jun Li, Antonio Plaza and Jose Bioucas-Dias

10:20–10:40  MULTI-TEMPORAL UNMIXING ANALYSIS OF HYPERION IMAGES OVER THE GUANICA DRY FOREST
Maria C. Torres-Madronero, Miguel Velez-Reyes, Skip J. Van Bloem and Jesus D. Chinea

10:40-11:00  STUDY OF NON-LINEAR MIXING IN HYPERSPECTRAL IMAGERY – A FIRST ATTEMPT IN THE LABORATORY
Pierre Huard and Rodolphe Marion

11:00-11:20  IMPROVED SEQUENTIAL ENDMEMBER EXTRACTION ALGORITHMS
Qian Du, He Yang and Nicolas Younan

11:20-11:40  TOTAL VARIATION REGULARIZATION IN SPARSE HYPERSPECTRAL UNMIXING
Marian-Daniel Iordache, José Bioucas-Dias and Antonio Plaza

11:40 - 12:10  Coffee break
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<td>01</td>
<td>IMPLICATION FROM THE EXAMINATION OF SPECTRAL LIBRARY OF HYDROXYLATED AND/OR HYDRATED SILICATE MINERALS AT 1.0 – 2.5 MICRO-M WAVELENGTHS</td>
<td>Chaojun Fan, Hongjie Xie, Joan Wu and Stuart Birnbaum</td>
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<td>02</td>
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14 OIL SPILL THICKNESS ESTIMATION USING UNMIXING METHODS
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15 NEAR INFRARED HYPERSPECTRAL TRANSFLECTANCE IMAGING OF THIN LAYER WATER SAMPLES
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16 ASSESSMENT OF GOSAT POTENTIAL APPLICATION IN MONITORING REGIONAL VARIATION OF ATMOSPHERIC CO2 CONCENTRATION
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13:10 - 14:30 Lunch break

14:30 - 16:10 Session thu-o-2-a
   Hyperspectral methods for difficult target detection (1)
   Session Chairs: tba tba

14:30-14:50 SPARSE NONNEGATIVE MATRIX UNDERAPPROXIMATION AND ITS APPLICATION TO HYPERSPECTRAL IMAGE ANALYSIS
   Nicolas Gillis and Robert Plemmons

14:50-15:10 HYPERSPECTRAL ANOMALY DETECTION USING AN OPTIMIZED SUPPORT VECTOR DATA DESCRIPTION
   Prudhvi Gurram and Heesung Kwon

15:10-15:30 METHODS TO FIND SUB-PIXEL TARGETS IN HYPERSPECTRAL DATA
   Christoph Borel

15:30-15:50 ELLIPSOID-SIMPLEX HYBRID FOR HYPERSPECTRAL ANOMALY DETECTION
   James Theiler

15:50-16:10 AUTOMATION OF RARE TARGET DETECTION VIA ADAPTIVE FUSION
   Steven Adler-Golden and Robert Sundberg

Session thu-o-2-b
   Physical and Statistical Approaches Bridging the Gap
   Session Chairs: tba tba

14:30-14:50 SIMULTANEOUS CO2 AND AEROSOL RETRIEVAL IN A VEGETATION FIRE PLUME USING AVIRIS HYPERSPECTRAL DATA
   Adrien Deschamps, Rodolphe Marion, Xavier Briottet, Pierre-Yves Foucher and Claire Lavigne

14:50-15:10 ENDMEMBER-BASED CONTEXTUAL LEARNING FOR ANOMALY CLASSIFICATION IN HYPERSPECTRAL DATA
   Christopher R. Ratto, Kenneth D. Morton, Leslie M. Collins and Peter A. Torrione

15:10-15:30 VALIDATION OF PHYSICAL UNMIXING MODEL IN THE RADIATIVE DOMAIN
   Michal Shimoni, Xavier Briottet, Christiaan Perneel, Bernard Tanguy, Yves-Michel Frederic and Eyal Ben-Dor

15:30-15:50 PHYSICAL MODELLING AND NON-LINEAR UNMIXING METHOD FOR URBAN HYPERSPECTRAL IMAGES
   Inès Meganem, Philippe Déliot, Xavier Briottet, Yannick Deville and Shahram Hosseini
15:50-16:10  MAPPING INTIMATE MIXTURES USING AN ADAPTIVE KERNEL-BASED TECHNIQUE  
Joshua Broadwater and Amit Banerjee

16:10 - 16:40  Coffee break

16:40 - 18:20  Session thu-o-3-a  
Hyperspectral methods for difficult target detection (2)  
Session Chairs:  tba  

16:40-17:00  MIN-MAX DETECTION FUSION FOR HYPERSPECTRAL IMAGES  
Peter Bajorski

17:00-17:20  A KURTOSIS-BASED TEST TO EFFICIENTLY DETECT TARGETS PLACED IN CLOSE  
PROXIMITY WITH LOCAL COVARIANCE-BASED HYPERSPECTRAL  
ANOMALY DETECTORS  
Stefania Matteoli, Marco Diani and Giovanni Corsini

17:20-17:40  DETECTION OF VEHICLES IN SHADOW AREAS  
Michal Shimoni, Gustav Tolt, Jorgen Ahlberg and Christiaan Perneel

17:40-18:00  A DETECTION-IDENTIFICATION PROCESS WITH GEOMETRIC TARGET  
DETECTION AND SUBPIXEL SPECTRAL VISUALIZATION  
William Basener, Ariel Schlamm, David Messinger and Emmett Lentilucci

18:00-18:20  RANDOM PROJECTION AS DIMENSIONALITY REDUCTION AND ITS EFFECT  
ON CLASSICAL TARGET RECOGNITION AND ANOMALY DETECTION TECHNIQUES  
Yi Chen, Nasser Nasrabadi and Trac Tan

Session thu-o-3-b  
Unmixing and dimension reduction

16:40-17:00  APPLICABILITY OF ROBUST UNCONSTRAINED LINEAR UNMIXING (RULU) TO  
ENDMEMBER EXTRACTION TECHNIQUES  
Olga Duran and Maria Petrou

17:00-17:20  CONCURRENT SPATIAL-SPECTRAL BAND GROUPING: PROVIDING A SPATIAL  
CONTEXT FOR SPECTRAL DIMENSIONALITY REDUCTION  
Matthew Lee, Lori Bruce and Saurabh Prasad

17:20-17:40  ROBUST HYPERSPECTRAL SIGNAL SUBSPACE IDENTIFICATION IN THE  
PRESENCE OF SIGNAL DEPENDENT NOISE  
Nicola Acito, Marco Diani and Giovanni Corsini

17:40-18:00  STUDY ON THE ISSUE OF NOISE ESTIMATION IN DIMENSION REDUCTION OF  
HYPERSPECTRAL IMAGES  
Lianru Gao, Bing Zhang, Zhengchao Chen and Liping Lei

18:00-18:20  ROBUST ENDMEMBER EXTRACTION USING WORST-CASE SIMPLEX VOLUME  
MAXIMIZATION  
Tsung-Han Chan, Wing-Kin Ma, Arulmurugan Ambikapath and Chong-Yung Chi