SSPD2014 Monday 8th September 2014

8:45   **Registration and Refreshments**

9:15   **Welcome and opening**
        Mike Davies, University of Edinburgh

9:25   Plenary Keynote:
Signal Processing and Defence
Sean Ralph, Dstl.

Session 1: Source Localization – Chair, Jonathon Chambers, Loughborough University

10:25   1.1
Degradation of Covariance Reconstruction-Based Robust Adaptive Beamformers
Samuel D. Somasundaram[1], Andreas Jakobsson[2], [1] Thales Underwater Systems, [2]Lund University.

10:45   1.2
Polynomial Subspace Decomposition for Broadband Angle of Arrival Estimation
Mohamed Alrmah[1], Jamie Corr[1], Ahmed Alzin[1], Keith Thompson[1], Stephan Weiss[1], [1]University of Strathclyde.

11:05   Refreshments and Poster Exhibition

Session 2: Source Separation – Chair, John Soraghan, University of Strathclyde

11:35   2.1
A Sparse Regularized Model for Raman Spectral Analysis
Di Wu[1], Mehrdad Yaghoobi[1], Shaun Kelly[1], Mike Davies[1], Rhea Clewes[2], [1]University of Edinburgh, [2]Dstl.

11:55   2.2
Nonlinear Spectral Unmixing of Hyperspectral Images using Residual Component Analysis
Yoann Altmann[1], Steve McLaughlin[1], [1]Heriot-Watt University.

12:15 Lunch and Poster Exhibition

Session 3: Signal Processing Challenges – Industrial Perspective - Chair, Paul Thomas, Dstl

14:15   Malcolm Macleod, QinetiQ
14:35   Dave Nicholson, BAE Systems
14:55   Andy Stove, Thales

Session 4: Target Recognition – – Chair, Jonathon Chambers, Loughborough University

15:15   4.1

Reducing False Alarms in Automated Target Recognition using Local Sea-floor Characteristics

Oliver Daniell[1,2], Yvan Petillot[1,2], Scott Reed[1,2], Andrea Frau[2], Jose Vazquez[2,] [1]Heriot-Watt University, [2]SeeByte Ltd.

15:35   4.2

Krogager Decomposition and Pseudo-Zernike Moments for Polarimetric Distributed ATR

Domenico Gaglione[1], Carmine Clemente[1], Luca Pallotta[2], Ian Proudler[3], Antonio De Maio[2], John J Soraghan[1], [1] University of Strathclyde, [2]University of Naples Federico II, [3]Loughborough University

15:55   4.3

Introspective Classification for Pedestrian Detection

Calum Blair[1], John Thompson[1], Neil Robertson[2], [1]University of Edinburgh, [2]Heriot-Watt University

16:15 Refreshments and Poster Exhibition

Session 5: Distributed Signal Processing – Chair, Yvan Petillot, Heriot-Watt University

16:45   5.1

OFDM-based Distributed Estimation for Rich Scattering Environments

Robert Santucci[1], Mahesh Banavar[1], Sai Zhang[1], Andreas Spanias[1], Cihan Tepedelenlioglu[1], [1]Arizona State University.

17:05   5.2

Target aided online sensor localisation in bearing only clusters

Murat Uney[1], Bernard Mulgrew[1], Daniel Clark[2], [1]University of Edinburgh, [2]Heriot-Watt University.

17:25   5.3

Quantized Fusion Rules for Energy-Based Distributed Detection in Wireless Sensor Networks

Edmond Nurellari[1] Sami A Aldalahmeh[2], Mounir Ghogho[1,3], Desmond McLernon[1], [1]University of Leeds, [2] Al-Zaytoonah University of Jordan, [3]International University of Rabbat.

17:45   Close and end of day 1

19:30 Wine reception and meal (St Leonard's Hall)

SSPD2014 Tuesday 9th September 2014

8:30   **Registration and Refreshments**

9:00   Chairs welcome

9:05   Plenary Keynote:

Sparse Methods for Radar Signal Processing

Randolph Moses, Ohio State University.

Session 6: Synthetic Aperture Radar – Chair, Mike Davies, University of Edinburgh

10:05   6.1

Signatures of Braking Surface Targets in Spotlight Synthetic Aperture Radar

David A Garren[1], [1]Naval Postgraduate School

10:25   6.2

Multi-Polarization SAR Change Detection: Unstructured Versus Structured GLRT

Vincenzo Carotenuto[1], Carmine Clemente[2], Antonio De Maio[1], John J Soraghan[2], Salvatore Iommelli[1], [1]University of Naples Federico II, [1] University of Strathclyde.

10:45   Refreshments and Poster Exhibition

Session 7: MIMO - Chair, Yvan Petillot, Heriot-Watt University

11:15   7.1

Game theoretic power allocation for multistatic radar network in the presence of estimation error

Anastasia Panoui[1], Sangarapillai Lambotharan[1], Jonathon A Chambers[1], [1]Loughborough University.

11:35   7.2

Lattice-Reduction Aided Successive Optimization Tomlinson-Harashima Precoding Strategies for Physical-Layer Security in Wireless Networks

Xiaotao Lu[1], Keke Zu[2], Rodrigo C. de Lamare[3], [1]University of York, [2]Ericsson Research, [3] CETUC/PUC-Rio.

11:55   7.3

Transmit Beamforming Design for Two-Dimensional Phased-MIMO Radar with Fully-Overlapped Subarrays

Anastasios Deligiannis[1], Jonathon A Chambers[1], Sangarapillai Lambotharan[1], [1]Loughborough University

12:15   7.4

Constant Envelope Fractional Fourier Transform based Waveform Libraries for MIMO Radar

Christos V. Ilioudis[1], Carmine Clemente[1], Ian Proudler[2], John J Soraghan[1], [1]University of Strathclyde, [2]Loughborough University.

12:35 Lunch and Poster Exhibition

Session 8: Signal Processing Challenges – Military Perspective – Chair, Paul Thomas, Dstl

14:00   Chris Coker
14:15   Robert Backhouse
14:30   James Clarke
14:45   Discussion

Session 9: Electronic Surveillance – Chair, John Soraghan, University of Strathclyde

15:00   9.1

An Efficient Implementation of the Low-Complexity Multi-Coset Sub-Nyquist Wideband Radar Electronic Surveillance

Mehrdad Yaghoobi[1], Bernard Mulgrew[1], Mike Davies[1], [1]University of Edinburgh.

15:20   9.2

Implementation of an autocorrelation-based spectrum sensing algorithm in real-world channels with frequency offset

Pat Chambers[1], Mathini Sellathurai[1], [1]Heriot-Watt University.

15:40   Refreshments and Poster Exhibition

Session 10: Tracking – Chair, Mike Davies, University of Edinburgh

16:10   10.1

Performance metric in closed-loop sensor management for stochastic populations

Emmanuel D. Delande[1], Jeremie Houssineau[1], Daniel Clark[1], [1]Heriot-Watt University

16:20   10.2

Tracking with Intent

Rolf Baxter[1], Michael Leach[2,1], Neil Robertson[1], [1]Heriot-Watt University, [2]Roke Manor Research

16:40   Closing remarks and end of conference
16:45   Refreshments

Optional Session: Open Source Tracking Framework Meeting – Chair, Paul Thomas, Dstl

17:00   Meeting to discuss the creation of a Tracking Framework for research and evaluation

18:30   Meeting close

Poster Session

The Posters will be displayed over the two days of the Conference; authors of the posters will be available throughout the Lunch period on both days to discuss their work with you.

P01   **Fusion of Thermal and Visible Images for Day/Night Moving Objects Detection**
Tarek Mouats[1], Nabil Aouf[1] , [1]Cranfield University.

P02   **Truncated unscented particle filter for dealing with non-linear and unequal constraints**
Miao Yu[1], Wen-Hua Chen[1], Jonathon A Chambers[1], [1]Loughborough University.

P03   **Topographic Visual Analytics of Multibeam Dynamic SONAR Data**
Iain Rice[1], David Lowe[1], [1]Aston University.

P04   **Parallel Processing of the Fast Decimation-in-image Back-projection Algorithm for SAR**
Shaun Kelly[1], Mike Davies[1], John Thompson[1], [1]University of Edinburgh.

P05   **Room Boundary Estimation from Acoustic Room Impulse Responses**
Luca Remaggi[1], Philip JB Jackson[1], Philip Coleman[1], Wenwu Wang[1], [1]University of Surrey.

P06   **Learning Entropy for Novelty Detection: A Cognitive Approach for Adaptive Filters**
Ivo Bukovsky[1], Peter Benes[1], Cyril Oswald[1], Matous Cejnek[1], [1]Czech Technical University, Prague.

P07   **Cyclic-by-Row Approximation of Iterative Polynomial EVD Algorithms**
Jamie Corr[1], Keith Thompson[1], Stephan Weiss[1], John G McWhirter[2], Ian Proudler[3] ,
[1]University of Strathclyde, [2]Cardiff University, [3]Loughborough University.

P08   **Cooperative Positioning Using Angle of Arrival and Time of Arrival**
Muhammad Waqas Khan[1], Naveed Salman[1], Andrew H. Kemp[1], [1]University of Leeds.

P09   **Large MIMO sonar systems: a tool for underwater surveillance**
Yan Pailhas[1], Yvan Petillot[1], [1]Heriot-Watt University.