



IWSSIP 2015: The 22nd International Conference on Systems, Signals and Image Processing

**Location: The Mermaid Conference & Events Centre, Puddle Dock, Blackfriars,
London EC4V 3DB, United Kingdom**

Technical Programme:

Thursday 10 th September	Friday 11 th September	Saturday 12 th September
08:00 – 08:50 Registration & Arrival Refreshments	08:30 – 09:00 Registration & Arrival Refreshments	08:30 – 09:00 Registration & Arrival Refreshments
08:50 – 09:15 Opening Welcome	09:00 – 10:00 Keynote Talks III & IV	09:00 – 10:00 Keynote Talks V
09:15 – 10:15 Keynote Talks I	10:00 – 11:30 Session 4	10:00 – 11:00 Session 7
10:15 – 10:30 Mid-Morning refreshments	11:30 – 11:45 Mid-Morning refreshments	11:00 – 11:30 Mid-Morning refreshments
10:30 – 12:15 Session 1	11:45 – 13:15 Session 5	11:30 – 13:00 Session 8
12:15 – 13:00 Lunch	13:15 – 14:00 Lunch	13:00 – 14:00 Lunch
13:00 – 14:00 Keynote Talks II	14:00 – 15:00 Invited Lectures I	14:00 – 15:30 Session 9
14:00 – 15:45 Session 2	15:00 – 17:00 Session 6	15:30 – 15:50 Closing Session
15:45 – 16:15 Afternoon Refreshments	17:00 – 17:30 Afternoon Refreshments	15:50 – 16:20 Afternoon Refreshments
16:15 – 17:30 Session 3		
18:30 – 19:15 Boarding and drinks reception on board the Harmony (Bateaux Cruises) at Embankment Pier	18.00 Group Meeting for the Bus Excursion outside the Mermaid Centre	
19.15 – 22.00 Sailing and conference dinner on board (Bateaux Cruises)	18.10 – 20.00 Bus Excursion	

Thursday 10th September:

08:00 – 08:50 Registration (in Foyer) & Arrival Refreshments (Bridge Bar)

08:50 – 09:00 Opening Welcome (Newgate Room): **Professor Panos Liatsis**

09:00 – 09:15 Opening Address (Newgate Room): **Professor Paul Curran (Vice-Chancellor, City University London)**

09:15 – 10:15 Keynote Talks:

Keynote Talks I: BIOMEDICAL

(Newgate Room)

Chair: Prof Panos Liatsis

Prof Guang-Zhong Yang (Imperial College London)

Vision for Robotic Surgery

10:15 – 10:30 Mid-Morning refreshments (Bridge Bar)

10:30 – 12:15 Session 1:

1A BIOMEDICAL I

(Newgate Room)

Chair: Dr Nikolaos Boulgouris

18 Stamile, Kocevar, Cotton, Hannoun, Durand-Dubief, Frindel, Rousseau & Sappey-Marini (University of Lyon)
A Longitudinal Model for Variations Detection in White Matter Fiber-Bundles

14 Pham, Doncescu & Régis (University of Toulouse)
Detecting the optimal active contour in the computed tomography image by using entropy to choose coefficients in energy equation

52 Plissiti, Vrigkas & Nikou (University of Ioannina)
Segmentation of cell clusters in Pap smear images using intensity variation between superpixels

55 Lazareva, Liatsis & Rauscher (City University London)
An Automated Image Processing System for the Detection of Photoreceptor Cells in Adaptive Optics Retinal Images

91 Uus, Liatsis, Jawaid & Rajani (City University London)
Extraction of stenosis introduced flow resistance from CCTA data

46 Mezlini, Youssef, Bouhadoun, Budyn, Laredo, Ghalila & Chappard (Paris Diderot University) High resolution volume quantification of the knee joint space based on a semi-automatic segmentation of computed tomography images

1B COMMUNICATIONS & NETWORKS

(Aldgate & Bishopgate Room)

Chair: Prof Ján Turán

09 Safiulin, Schwarz & Rupp (Vienna University of Technology) System Level Simulation of LTE MBSFN Networks with High Mobility Users

10 Berisha, Midoglu, Homayouni, Svoboda & Rupp (Vienna University of Technology) Measurement Setup for Automatized Baselineing of WLAN Network Performance

11 Tóth, Ovseník & Turán (Technical University of Košice)
Long Term Availability Analysis of Experimental Free Space Optics System

19 Malajner, Planinsic & Gleich (University of Maribor)
UWB Ranging Accuracy

67 Škaljo, Begović & Behlilović (University of Sarajevo)
An Efficient Troubleshooting Testing Scenario for IPTV over DSL Lines: Practical Examples

12:15 – 13:00 Lunch (Bridge Bar)

13:00 – 14:00 Keynote Talks:

Keynote Talks II: ARTIFICIAL INTELLIGENCE

(Newgate Room)

Chair: Professor Panos Liatsis

Prof Duc Truong Pham (University of Birmingham)

Intelligent Optimisation and the Bees Algorithm

14:00 – 15:45 Session 2:

2A IMAGE & VIDEO PROCESSING I

(Newgate Room)

Chair: Professor Ebroul Izquierdo

29 Zhang, Xiao & Shi (Shanghai Jiao Tong University)

Low-Poly Style Image and Video Processing

30 Davies, Wilson & Ware (University of South Wales)

Stereoscopic Disparity Generation Reduction using a Dilated Laplacian Approach

38 Feldmann (RWTH Aachen University)

Medium Grain Scalability for SHVC

42 Kameda, Takeichi, Ishibashi, Matsuda & Itoh (Tokyo

University of Science) Two Stage Inter-frame Prediction using Pixel- and Block-wise Motion Compensation

45 Miknis, Davies, Plassmann & Ware (University of South

Wales) Near real-time point cloud processing using the PCL

2B BIOMEDICAL II

(Aldgate & Bishopgate Room)

Chair: Dr Mario Mustra and Prof Branka Zovko-Cihlar

71 Perez, Fiallos, Conci & Andaluz (National Polytechnic

School in Ecuador) Automatic Detection of Injuries in Mammograms Using Image Analysis Techniques

32 Neto, Carvalho, Sampaio, Silva & Paiva (Federal

University of Maranhão) Automatic segmentation of masses in digital mammograms using particle swarm optimization and graph clustering

02 Taher, Werghi & AlAhmad (Khalifa University) Computer Aided Diagnosis System for Early Lung Cancer Detection

76 Pavlovičová, Kurilova, Oravec, Rakar & Marcek (Slovak University of Technology in Bratislava) Retinal Blood Vessels Extraction Using Morphological Operations

33 Mustra, Peros & Zovko-Cihlar (University of Zagreb)

Comparison of Segmentation Accuracy for Different LUTs Applied to Digital Mammograms

92 Uus, Liatsis & Rajani (City University London)

Overview of factors affecting quality of coronary blood flow simulations

15:45 – 16:15 Afternoon Refreshments (Bridge Bar)

16:15 – 17:30 Session 3:

3A SECURITY

(Newgate Room)

Chair: Professor Pavol Podhradsky

77 Hoo, Miron, Badii & Chan (University of Reading)

Skin-based Privacy Filter for Surveillance Systems

61 Gardziński, Kowalak, Maćkowiak, Kamiński (Poznań

University of Technology) Crowd Density Estimation Based on Voxel Model in Multi-View Surveillance Systems

37 Maiorana, La Rocca & Campisi (Roma Tre University)

Cognitive Biometric Cryptosystems: a Case Study on EEG

84 Saadatbeheshti & Liatsis (City University London)

How Humans Can Help Computers to Solve an Artificial Problem?

24 Shao, Dong & Zhao (Shanghai University of Electric Power)

An Adaptive Clustering Approach for Group Detection in the Crowd

18:30 – 19:15 Boarding and drinks reception on board the Harmony (Bateaux Cruises) at Embankment Pier

19:15 – 22.00 Sailing and conference dinner on board the Harmony (Bateaux Cruises)

Friday 11th September:

08:30 – 09:00 Registration (in Foyer) & Arrival Refreshments (Bridge Bar)

09:00 – 10:00 Keynote Talks:

<p>Keynote Talks III: VIDEO CODING (Newgate Room) Chairs: Dr Marta Mrak and Dr Karsten Müller Prof Jens-Rainer Ohm (RWTH Aachen University) Trends and Perspectives in Video Compression</p>	<p>Keynote Talks IV: NON-DESTRUCTIVE TESTING (Aldgate & Bishopgate Room) Chair: Dr Agathoklis Giaralis Prof Keith Worden, (University of Sheffield) Recent Developments in SHM based on Time Series Analysis</p>
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10:00 – 11:30 Session 4:

<p>4A PROVISION I (Newgate Room) Chairs: Dr Marta Mrak and Dr Karsten Müller</p> <p>13 Naser, Ricordel & Le Callet (University of Nantes) Local Texture Synthesis: A Static Texture Coding Algorithm Fully Compatible with HEVC</p> <p>15 Aldahdooh, Barkowsky & Le Callet (University of Nantes) The Impact of Complexity in the Rate-Distortion Optimization: a Visualization Tool</p> <p>16 Ebadi & Izquierdo (Queen Mary University of London) Approximated RPCA for Fast and Efficient Recovery of Corrupted and Linearly Correlated Images and Video Frames</p> <p>17 Schwarz & Mrak (BBC R&D) Improved Reference Picture List Sorting in Video Coding</p>	<p>4B NON-DESTRUCTIVE TESTING (Aldgate & Bishopgate Room) Chair: Dr. Agathoklis Giaralis</p> <p>83 Gkoktsi, TauSiesakul & Giaralis (City University London) Multi-channel sub-Nyquist cross-Spectral Estimation for Modal Analysis of Vibrating Structures</p> <p>47 Comerford, Zhang, Beer & Kougioumtzoglou (University of Liverpool) Compressive Sensing for power spectrum estimation of multi-variate and multi-dimensional processes under missing data</p> <p>87 Miah, Uus, Liatsis, Roberts, Twist, Hovens & Godding (City University London) Design of Multidimensional Sensor Fusion System for Road Pavement Inspection</p> <p>88 Uus, Liatsis, Nardoni & Rahman (City University London) Optimisation of transducer positioning in air-coupled ultrasound inspection of concrete/asphalt structures</p>
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11:30 – 11:45 Mid-Morning refreshments (Bridge Bar)

11:45 – 13:15 Session 5:

<p>5A PROVISION II (Newgate Room) Chairs: Dr Marta Mrak and Dr Karsten Müller</p> <p>26 Zupancic, Blasi & Izquierdo (Queen Mary University of London) Inter-Prediction Optimisations for Fast HEVC Encoding of Ultra High Definition Content</p> <p>39 Rai, Barkowsky & Le Callet (University of Nantes) Does H.265 based peri and para-foveal quality flicker disrupt natural viewing patterns?</p> <p>40 Papadopoulos, Agrafiotis & Bull (University of Bristol) On the performance of modern video coding standards with textured sequences</p> <p>54 De-Luxán-Hernández, Marpe, Müller & Wiegand (Fraunhofer Heinrich Hertz Institute) A Kernel-Based Statistical Analysis of the Residual Error in Video Coding</p> <p>57 Thakur & Chubach (RWTH Aachen University) Texture Analysis and Synthesis using Steerable Pyramid Decomposition for Video Coding</p>	<p>5B CULTURAL HERITAGE (Aldgate & Bishopgate Room) Chair: Dr. Roxana Radvan</p> <p>93 Chelmus (National Institute of R&D for Optoelectronics) Ground penetrating radar survey inside a historical building</p> <p>94 Armeanu (National Institute of R&D for Optoelectronics) X-ray image analysis for CH investigations</p> <p>95 Cortea, Gherbase, Dumbrăvicean (National Institute of R&D for Optoelectronics) Combined spectroscopic analysis for identification of mural paintings materials</p> <p>96 Ene, Radvan (National Institute of R&D for Optoelectronics) Fast documentation and accurate real-time investigation for historical Buddhist building</p> <p>99 Fantoni, Colao, Caneve, Spizzichino, Guarneri, Danielis, Ferri De Collibus, Fornetti, Francucci, Mencattini (ENEA – FSN-TECFIS – Frascati Research Centre) Image processing from laser scanners for remote diagnostic and virtual fruition of cultural heritage</p>
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13:15 – 14:00 Lunch (Bridge Bar)

14:00 – 15:00 Invited Lectures:

Invited Lectures I: CULTURAL HERITAGE APPLICATIONS

(Newgate Room)

Chair: Dr Roxana Radvan

Roberta Fantoni (ENEA UTAPRAD)

Image Processing from laser scanners for remote diagnostics and virtual fruition of cultural heritage

Pilar Ortiz (Universidad Pablo de Olavide)

Vulnerability, digital image analysis and 3D-documentation applied to the study of building diagnosis

15:00 – 17:00 Session 6:

6A IMAGE & VIDEO PROCESSING II

(Newgate Room)

Chair: Professor Ryszard Stasinski

25 Wetherall, Hurley-Smith & Taylor (University of Greenwich)

Investigation into the Effects of Transmission-channel Fidelity Loss in RGBD Sensor Data for SLAM

68 Wang, Simon, Baroud & Najmabadi (University of Stuttgart)

Visually Lossless Image Compression Extension for JPEG based on Just-noticeable Distortion Evaluation

58 Gardziński, Kowalak, Maćkowiak & Kamiński (Poznań University of Technology) Quality Improvement of 3-D Voxel Models Based on Histograms of Model Reprojection

05 Alsam & Rivertz (Sør-Trøndelag University College)

Fast scale space image decomposition

72 Fahmy (Future University in Egypt) An Efficient Clustering Technique for Cameras Identification using Sensor Pattern Noise

12 Stasinski & Grzywalski (Poznań University of Technology)

Test of Six Image Quality Assessment Methods

6B SYSTEM & SOFTWARE DEVELOPMENT

(Aldgate & Bishopgate Room)

Chair: Dr Abir Hussain and Dr Dhiya Al-Jumeily

66 Aljaaf, Al-Jumeily, Hussain, Fergus & Al-Jumaily (Liverpool John Moores University) Applied Machine Learning Classifiers for Medical Applications: Clarifying the behavioural patterns using a variety of datasets

74 Al-Qahtani, Amira & Ramzan (University of the West of Scotland) An Efficient Information Retrieval Technique for e-Health Systems

80 Hamid, Al-Jumeily & Hussain (Liverpool John Moores University) Development of a Dynamic Cost-Centric Risk Impact Metrics

51 Hussain, Al-Jumeily & Fergus (Liverpool John Moores University) The Utilisation of Social Media for Bridging the Gap between Patients and Pharmaceutical companies

81 Al-Jumeily, Hussain, MacDermott & Murph (Liverpool John Moores University) Improving the barrier of communication between healthcare professionals and their patients using a Prescription Tracking

65 Al-Jumeily, Hussain, MacDermott, Seeckts & Lunn (Liverpool John Moores University) Methods and Techniques to Support the Development of Fraud Detection System

31 Khalaf, Idowu, Hussain, Al-Jumeily & Fergus (Liverpool John Moores University) Advance Flood Detection and Notification System based on Sensor Technology and Machine Learning Algorithm

17:00 – 17:30 Afternoon Refreshments (Bridge Bar)

18.00 Group Meeting for the Bus Excursion outside the Mermaid Centre

18.10 – 20.00 Bus Excursion

Saturday 12th September:

08:30 – 09:00 Registration (in Foyer) & Arrival Refreshments (Bridge Bar)

09:00 – 10:00 Keynote Talks:

Keynote Talks V: VIDEO PROCESSING

(Newgate Room)

Chair: Professor Panos Liatsis

Prof Aggelos K. Katsaggelos (Northwestern University)

Learning for Video Super-Resolution

10:00 – 11:00 Session 7:

7A IMAGE & VIDEO PROCESSING III

(Newgate Room)

Chair: Dr Abir Hussain

01 Alexiou, Gong & Xiang (Queen Mary University of London) Learning A Joint Discriminative-Generative Model for Action Recognition

03 Ueki & Kobayashi (Waseda University) Multi-layer Feature Extractions for Image Classification - Knowledge from Deep CNNs

04 Alsam (Sør-Trøndelag University College) Parameterless Edge Preserving Colour Image diffusion

7B SIGNAL PROCESSING I

(Aldgate & Bishopgate Room)

Chair: Professor Gregor Rozinaj

23 Prasomphan (King Mongkuts University of Technology North Bangkok) Improvement Of Speech Emotion Recognition with Neural Network Classifier by Using Speech Spectrogram

28 Kacur, Vargic & Trnovsky (Slovak University of Technology in Bratislava) Discriminative Training of HMM Using Masper Procedure

36 Rybárová & Rozinaj (Slovak University of Technology in Bratislava) Diphone Spanish Text-to-Speech Synthesizer

11:00 – 11:30 Mid-Morning refreshments (Bridge Bar)

11:30 – 13:00 Session 8:

8A IMAGE & VIDEO PROCESSING IV

(Newgate Room)

Chair: Professor Markus Rupp

34 Ferrarini, Ehsan, Rehman & McDonald-Maier (University of Essex) Performance Characterization of Image Feature Detectors in Relation to the Scene Content Utilizing a Large Image Database

41 Chahine, Berbari, Lagorre & Petit (University of Paris-Est Créteil) Evidence theory for image segmentation using information from stochastic Watershed and Hessian filtering

48 Ehsan, Clark, Ferrarini, Rehman & McDonald-Maier (University of Essex) Assessing The Performance Bounds Of Local Feature Detectors: Taking Inspiration From Electronics Design Practices

27 Rieutort-Louis & Arandjelovic (University of St Andrews) Bo(V)W Models for Object Recognition from Video

59 Van Vuuren, Dorland, le Roux, Venter, Erasmus, Dorland & Campbell (North-West University in South Africa) Using visual texture analysis to classify raw coal components

8B SIGNAL PROCESSING II

(Aldgate & Bishopgate Room)

Chair: Professor Peter Planinsic

43 Gleich, Malajner & Planinsic (University of Maribor) Target Localization using Dual Tone Frequency Radio

50 Akbari, Shamsollahi & Phlypo (Sharif University of Technology) Fetal ECG Extraction using piTucker Decomposition

63 Lekomtcev, Kratochvil, Marsalek & Pospisil (Brno University of Technology) Experimental Evaluation of the Impact of Receiver Front-End on Spectrum Sensing

86 Miah, Kaparias & Liatsis (City University London) Evaluation of MEMS Sensors Accuracy for Bicycle Tracking and Positioning



13:00 – 14:00 Lunch (Bridge Bar)

14:00 – 15:30 Session 9:

<p>9A IMAGE & VIDEO PROCESSING V (Newgate Room) Chair: Dr Dhiya Al-Jumeily</p> <p>73 Alzu'bi, Amira, Ramzan & Jaber (University of the West of Scotland) Robust Fusion of Color and Local Descriptors for Image Retrieval and Classification</p> <p>78 Miron & Badii (University of Reading) A new approach for change detection based on graph cuts</p> <p>49 Bouteldja & Kourgli (University of Sciences and Technology HOUARI BOUMEDIENE) Multiscale Texture Features For The Retrieval Of High Resolution Satellite Images</p> <p>22 Henderson & Izquierdo (Queen Mary University of London) Minimal Hough Forest training for pattern detection</p> <p>85 Saadatbeheshti & Liatsis (City University London) VICAP: Using the Mechanisms of Trans-Saccadic Memory to Distinguish Between Humans and Machines</p>	<p>9B IMAGE & VIDEO PROCESSING VI (Aldgate & Bishopgate Room) Chair: Professor Jarmila Pavlovicova</p> <p>21 Biadglgne & Arandjelovic (University of St Andrews) Face Filtering - Insights from Real-World Data</p> <p>53 Loderer, Pavlovičová & Oravec (Slovak University of Technology in Bratislava) Face Parts Importance in Face and Expression Recognition</p> <p>56 Abche, Ishac & Yamine (University of Balamand) Face Recognition Using A Fourier-Polar Based Approach</p> <p>75 Du Plessis, Van Vuuren & Van Schoor (North-West University in South Africa) Alcohol and the Oculomotor Neural Circuit : System Identification, a Delay-Based Approach</p> <p>69 Jirka, Oravec, Sopiak, Pavlovičová & Budiak (Slovak University of Technology in Bratislava) Clustering algorithms for face recognition based on client-server architecture</p>
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15:30 – 15:50 Closing Session & Best Student Awards (Newgate Room): Chair: Professor Panos Liatsis

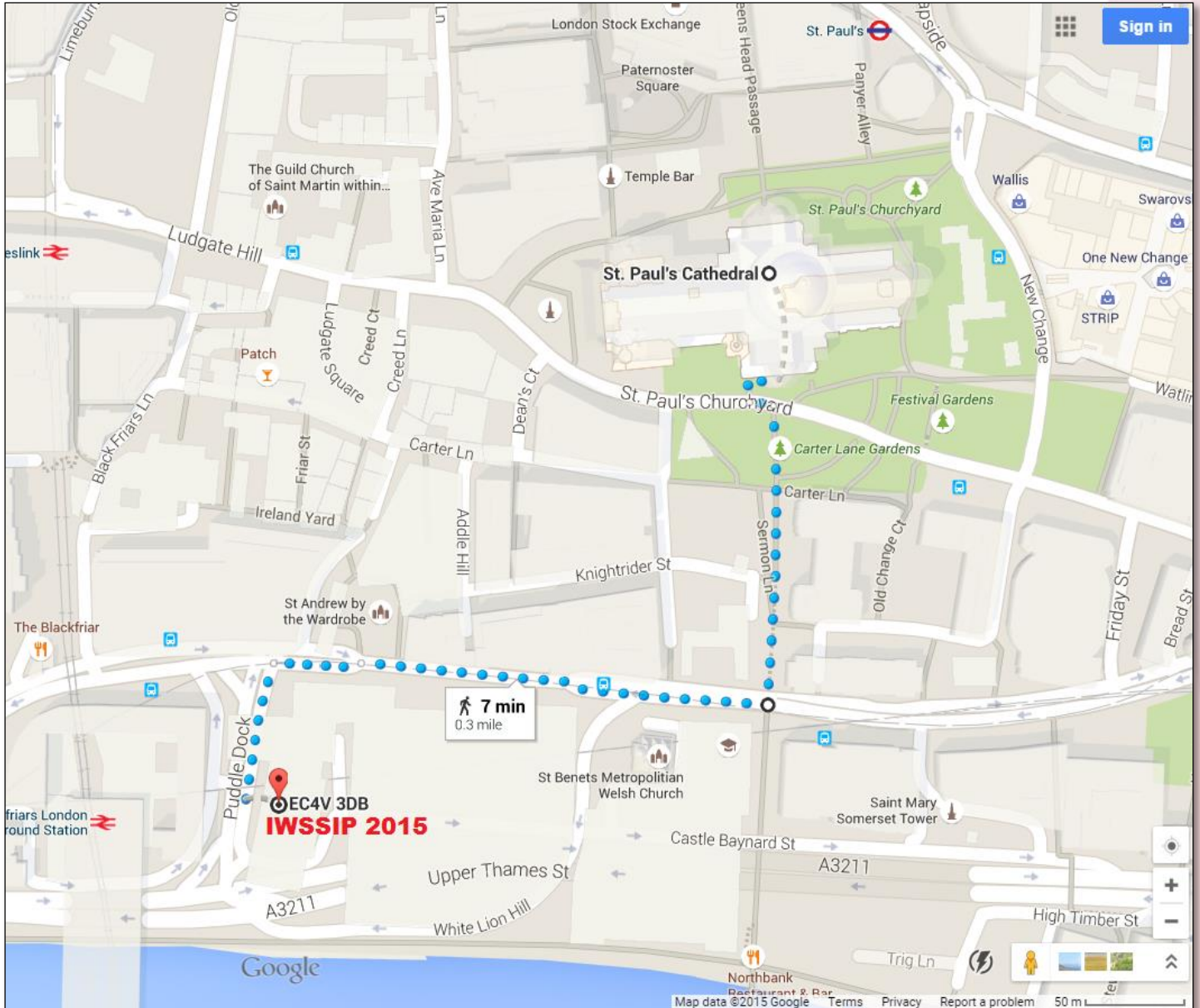
15:50 – 16:20 Afternoon Refreshments (Bridge Bar)

Cloakroom & Luggage storage are available in Ludgate Room

Emergency Contact Details:
Alena Uus (Local Organiser)
Mobile: +44 7927 196857
Email: alena.uus.2@city.ac.uk

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Local Direction (From St. Pauls Cathedral to IWSSIP 2015)



IWSSIP 2015 Location:

**The Mermaid Conference & Events
Centre, Puddle Dock, Blackfriars,
London EC4V 3DB, United Kingdom**