



Seventh International Conference on Internet Technologies & Applications

## CONFERENCE PROGRAMME

*Tuesday 12 - Friday 15 September 2017  
Wrexham, North Wales, UK*

Programme Chair: Dr. Stuart Cunningham ([s.cunningham@glyndwr.ac.uk](mailto:s.cunningham@glyndwr.ac.uk))  
Conference Chair: Prof. Richard Picking ([r.picking@glyndwr.ac.uk](mailto:r.picking@glyndwr.ac.uk))  
Programme Update: 06/09/2017  
Conference Venue: Catrin Finch Centre, Wrexham Glyndŵr University  
<http://conferencevenues.glyndwr.ac.uk/Wrexham/CatrinFinchCentre/>

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Tuesday 12<sup>th</sup> September 2017

<b>08:30</b>	<b>Registration</b>
<b>09:30</b>	<p><b>Keynote: Professor Dan Farkas (Pace University, New York, USA)</b>  <b>Location Analytics: Maps, Geographic Information Systems and Spatial Analysis</b>                  Session Chair: Prof. Vic Grout (Wrexham Glyndŵr University, UK)</p> <p><i>Location is at center of the most exciting and innovative technologies emerging today. Along with traditional applications, GIS is fundamental to the Internet of Things (IoT), autonomous vehicles, social media analysis, and the sharing economy. Leveraging hardware, software, cloud computing, big data and analytics, these technologies involves a broad spectrum of expertise including software development, computer networking and mobile technologies. Many disciplines and business sectors have location analytics at their core and from healthcare, to efficient routing in delivery systems, to environmental management, to deciding where to locate the next Starbucks, the impact of GIS is ever-present. Dan's presentation will give a brief overview of GIS concepts, discuss its influence on existing and emerging applications and describe some of his own research and projects in healthcare, environmental conservation, and criminal justice.</i></p>
<b>10:30</b>	<b>Coffee Break</b>
<b>11:00</b>	<p><b>Papers: Network Technologies</b>                  Session Chair: Dr. Stuart Cunningham (Wrexham Glyndŵr University, UK)</p> <p><i>Autonomous decentralized M2M Application Service Provision</i>                  Michael Steinheimer; Ulrich Trick; Bogdan Ghita; Woldemar Fuhrmann</p> <p><i>Ensuring Trustworthiness for P2P-based M2M Applications</i>                  Besfort Shala; Patrick Wacht; Ulrich Trick; Armin Lehmann; Bogdan Ghita; Stavros</p> <p><i>Shiaeles Network Anomaly Detection in Time Series using Distance Based Outlier Detection with Cluster Density Analysis</i>                  Kieran Flanagan; Enda Fallon; Abir Awad; Paul Connolly</p> <p><i>Automated Functional Testing of P2P-based M2M Applications</i>                  Besfort Shala; Patrick Wacht; Ulrich Trick; Armin Lehmann; Bogdan Ghita; Stavros Shiaeles</p>
<b>13:00</b>	<b>Lunch</b>
<b>14:00</b>	<p><b>Papers: Web Services, Safety and Management</b>                  Session Chair: Dr. Shirley Atkinson (Plymouth University, UK)</p> <p><i>Web-Service Framework For Environmental Models</i>                  Rui Wu; Moinul Hossain; Jose Painumkal; Mohamed Kettouch; Cristina Luca; Sergiu Dascalu; Frederick C. Harris</p> <p><i>Web Application for Visual Modeling of Discrete Event Systems</i>                  John N Davies; Inna Stetsenko; Anton Dyfuchyn; Kateryna Leshchenko</p> <p><i>Internet Risks for Children: Parents' Perceptions and Attitudes An Investigative Study of the Saudi Context</i>                  Norah Alqahtani; Shirley Atkinson; Steven Furnell; Ingo Stengel</p> <p><i>Assay of IP Mobility Management in SDN based Mobile Network Architecture</i>                  Muhammad Dawood; Woldemar Fuhrmann; Bogdan Ghita</p>
<b>16:00</b>	<b>Coffee and Networking</b>
<b>17:00</b>	<b>End of Day 1</b>
<b>17:30</b>	<p><b>Carbon Meets Silicon 2017 Keynote: Prof. Andy Miah (University of Salford, UK)</b>                  (Oriol Sycharth Gallery, Main Building)</p>

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Wednesday 13<sup>th</sup> September 2017

08:45	<b>Registration</b>
09:30	<p><b>Paper Session: Healthcare Treatment</b>  <u>Session Chair: Dr. Cristina Luca (Anglia Ruskin University, UK)</u></p> <p><i>Programmable Gesture Manipulator for Hand Injuries Rehabilitation</i>  Tatiana Kozhaeva; Sergey Zhestkov; Dmitry Bulakh; Nigel Houlden</p> <p><i>Evaluating Ensemble Prediction of Coronary Heart Disease using Receiver Operating Characteristics</i>  Tahira Mahboob</p>
10:30	<b>Coffee Break</b>
11:00	<p><b>Papers: Healthcare Sensing</b>  <u>Session Chair: Dr. Nigel Houlden (Wrexham Glyndŵr University, UK)</u></p> <p><i>Personalized Wearable Systems for Real-time ECG Classification and Healthcare Interoperability</i>  Amit Walinjkar</p> <p><i>Body Area Networks in a Medical Environment</i>  John N Davies; Mariya Verovko; Oleksandr Verovko; Volodymyr Kazymyr; Archana Bhalla</p>
12:00	<b>Poster Session</b>
13:00	<b>Lunch</b>
14:00	<b>Visit to Chester</b>
23:30	<b>Return from Chester and End of Day 2</b>

Thursday 14<sup>th</sup> September 2017

08:45

Registration

09:30

**Keynote: Professor Alan Dix (Talis and University of Birmingham, UK)**  
**Communicating in Wales: design and architecture for mobile applications over poor connectivity**

Session Chair: Prof. Richard Picking (Wrexham Glyndŵr University, UK)

*In 1994 I wrote the first journal paper on mobile systems from a HCI perspective; the focus of that paper was connectivity rather than screen-size. Twenty years on, in 2013 I walked the complete periphery of Wales, over one thousand miles: up Offa's Dyke (calling in Wrexham Glyndwr University en route), and then all around the coast. Amongst other outcomes of this journey was a lived experience of the paucity of mobile and internet access 'at the margins' – the problem has not gone away. However, you do not have to travel into the rural extremes to experience poor connectivity: business hotel WiFi often saturates and even for those living in cities mobile coverage drops once you travel by train, or even in urban 'not-spots'. Furthermore, many in rented accommodation rely solely on mobile internet.*

*This would be bad enough for those affected, but many applications fail in avoidable ways when connectivity is poor or intermittent. For example, the Twitter API wraps every 140 character tweet into 5-10K of JSON or XML and many mobile Twitter apps download 50 items of the feed before allowing interaction; that is a quarter to half of a megabyte – impossible in areas of poor connectivity.*

*This talk will present ways to design both the user experience and the underlying application, data and networking infrastructure to cope with poor or intermittent connectivity.*

*This is important from a business perspective if you want applications that work anywhere for anyone, but perhaps more critically from a social perspective. Those at the social, physical and economic margins will, for the foreseeable future, have less effective connectivity than those who are more privileged, if we are to shrink rather than grow the digital divide, we must truly seek to design for all.*

10:30

Coffee Break

11:00

**Paper Session: Data and Knowledge Representation**

Session Chair: To Be Confirmed

*Using Semantic Similarity for Schema Matching of Semi-structured and Linked Data*  
Mohamed Kettouch; Cristina Luca; Mike Hobbs; Sergiu Dascalu

*Application of Formal Grammar in Text Mining and Construction of an Ontology*  
Anton Kanev; Stuart Cunningham; Valery Terekhov

*Using the metagraph approach for addressing RDF knowledge representation imitations*  
Valeriy Chernenkiy; Yuriy Gapanyuk; Maria Skvortsova; Anatoly Nardid; Anton Gushcha; Rich Picking; Yuriy Fedorenko

*Detection and Graphical Visualization of Relationships between Entities in Wikipedia*  
Andreas Schmidt

13:00

Lunch

14:00

**Tutorial or Paper Session**

**Tutorial: An Introduction to statistical computing with R**

Prof. Dr. Andreas Schmidt

*R is not only for statistical computing, but an environment for all sorts of data manipulation, analysis, and mining with very good visualization capabilities like barplots, histograms, heatmaps, graphs, etc. It is available for a wide range of different platforms and easily extensible through its package concept. Major commercial software providers like Oracle and IBM integrate R in their products and provide commercial support for the system. The language R is interpreted and typically used interactively through the command line interpreter or in batch mode. It's most*

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*common data-structures include arrays, vectors, matrices, lists and data-frames and provide a wide range of importing and exporting functions for different sources like files (like text, xml, excel, ...), databases, URLs, and different statistical packages like SAS and SPSS. The tutorial will give an introduction to the main data-structures as well as the most important data manipulation and statistical operations. Finally, some of the graphical capabilities will be highlighted. The tutorial will also include hands-on parts, in which the participants use R for simple processing and visualization tasks as well as R as a front-end to visualize data from databases.*

**OR**

**Paper Session: Internet Technologies in Electronic and Electrical Engineering**

Session Chair: Prof. Sergey Lupin (National Research University of Electronic Technology, Moscow, Russia)

*Housing Estate Energy Storage Feasibility for a 2050 Scenario*  
David Sprake; Yuriy Vagapov; Sergey Lupin; Alecksey Anuchin

*Comparative Analysis and Practical Implementation of the ESP32 Microcontroller Module for the Internet of Things*  
Alexander Maier; Andrew Sharp; Yuriy Vagapov

*Event-driven simulation of digital circuits using modified Petri nets algorithm*  
Alexander Lapin; Dmitry Bulakh; Yuriy Vagapov

*Implementation of Electrical Rim Driven Fan Technology to Small Unmanned Aircraft*  
Robert Bolam; Yuriy Vagapov

<b>16:00</b>	<b>Free Time</b>
<b>18:00</b>	<b>Depart for Medieval Banquet</b>
<b>23:30</b>	<b>Return from Medieval Banquet and End of Day 3</b>

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**Friday 15<sup>th</sup> September 2017**

<b>10:30</b>	<b>Coffee</b>
<b>11:00</b>	<p><b>Paper Session: Current Issues in Technology its Applications</b>  <u>Session Chair: Denise Oram (Wrexham Glyndŵr University, UK)</u></p> <p><i>Image Matching Principles in Photometrical Transformations</i>            Diana Suprun; Stuart Cunningham</p> <p><i>Holistic Strategic Assessment and Evaluation of Cloud Computing Adoption: Insights from Saudi Healthcare Organisations</i>            Fawaz Alharbi; Anthony Atkins; Clare Stanier</p> <p><i>Self Adaptive Cuckoo Search Algorithm for RFID Network Planning</i>            Atef Jaballah; Aref Meddeb</p> <p><i>Real-time web applications driven by active browsing</i>            Hatem Aziz; Mick J Ridley</p>
<b>13:00</b>	<b>Closing Session</b>
<b>13:30</b>	<b>Lunch</b>
<b>15:00</b>	<b>End of Day 4</b>
<b>19:00</b>	<p><b>ITA Organisers' Curry</b>            Informal drinks and meal with the ITA 17 organising committee – all welcome!</p>