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University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Poster Session 12:00-14:00 Faraday Foyer

Maria da Graça Dias Carraça
(Research Institute for the Built and Human Environment)

Weixing Li
(Institute for Materials Research)

Krishnan Harihara Subrahmanian
(Informatics Research Institute)

Alexeis Garcia (Session C1)
(Informatics Research Institute)

Philip Holt (Session C3)
(Informatics Research Institute)

Dias Carraça, Maria da Graça

Modelling the Impact of Urban Areas on Precipitation Initiation

Here are presented some steps of a study of the influence of an urban area on convective clouds and precipitation. Of particular interest is the degree to which spatial variations of surface heterogeneity impact these phenomena. In this presentation, are shown preliminary results of a numerical scheme based upon several published systems and developed to derive fields of surface sensible heat flux, Q_H , for a range of wind and temperature inputs, over an urban area.

Q_H is calculated by a resistance-type formulation using the difference between the radiometric surface temperature, T_R , and the air temperature, T_a . Input values are T_R , T_a , the wind velocity, u , the building height, z_H , and the building frontal area index, β_F . T_a and u are typically measured in the inertial sub-layer. Stability corrections for momentum, β_M , and heat, β_H , are used. The bulk equations are used on a 1km x 1km grid, or finer, where the model parameters are specified as averages over each grid square.

The next step of our study is to implement the model for Greater Manchester in order to look for any patterns that may indicate areas of increased sensible heat flux, which might be related to downwind convective initiation.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Urban effects on clouds and precipitation
Supervisor	Professor Chris G. Collier
School	School of Environment & Life Sciences

Li, Weixing

Magnetic properties of $\text{Sm}_3\text{Fe}_{28.1-x}\text{Co}_x\text{Mo}_{0.9}$ compounds ($x = 0, 4, 8, 12, 14, 16$) compounds

An experimental and calculated investigation is carried out in novel series of $\text{Sm}_3\text{Fe}_{28.1-x}\text{Co}_x\text{Mo}_{0.9}$ compounds ($x = 0, 4, 8, 12, 14, 16$). Substitution of Co for Fe leads to a significant increase of the Curie temperature and saturation magnetization. Even more important, for $x = 14$ the easy magnetization direction changes from easy plane to easy axis. In this compound system, $\text{Sm}_3\text{Fe}_{12.1}\text{Co}_{16}\text{Mo}_{0.9}$ is a very promising candidate for rare-earth permanent magnetic materials. Its room temperature saturation magnetization ($M_S = 1.50$ T) and anisotropy field ($B_a = 6.5$ T) are comparable to those of $\text{Nd}_2\text{Fe}_{14}\text{B}$ ($M_S = 1.60$ T and $B_a = 7.0$ T). However, its Curie temperature is 1020 K, which is substantially higher than that of $\text{Nd}_2\text{Fe}_{14}\text{B}$ (588 K). The first principle calculations show that the Co atoms, with smaller atomic radius compared with Fe and Mo, preferentially occupy Fe1, Fe8 and Fe11 sites, modifying the negative exchange interactions of Fe-Fe pairs into positive and strong interactions of Fe-Co or Co-Co. Thus, the Curie temperature is greatly elevated especially in low Co substitution. Based on the bond lengths between various atoms obtained by computer simulation, the Curie temperature for $\text{Sm}_3\text{Fe}_{28}\text{Mo}$ compound has been calculated, which is close to the experimental one.

Research Institute	Institute for Materials Research
Thesis Title	First Principle Calculation Of Physical Properties In Sodium Alanates
Supervisor	Dr Ian Morrison
School	School of Computing, Science & Engineering

Subrahmanian, Krishnan Harihara

Ontologies in Information Systems

An emerging trend in web technologies is the increasing usage of semantics to enable enhanced machine - human and intelligent system – system interaction. The World Wide Web is evolving from a medium of information dissemination to a human audience into being an intelligent arena in which specialist programs can access, process, understand, make decisions and take actions based on the semantic content. Alongside, ontologies have come to play a critical role in designing information repositories that power a wide range of application from internet searches to bioinformatics systems. This presentation aims at providing an insight into how this abstract philosophical concept gained currency in information systems vocabulary. An attempt has been made to demonstrate its relation to the semantic web initiative. An overview of the usage of ontologies in information systems is also provided.

Research Institute	Informatics Research Institute
Thesis Title	Ontologies and the Semantic Web Initiative
Supervisor	Dr Laura Campoy-Gomez
School	School of Computing, Science & Engineering



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Group A1 10:30-12:00 Pankhurst Room

David Gledhill
(Research Institute for the Built and Human Environment)

Ebenezer Yemi Ogunbadewa
(Research Institute for the Built and Human Environment)

Jenny Crowley
(Research Institute for the Built and Human Environment)

Lisa Davison
(Research Institute for the Built and Human Environment)

Gledhill, David

Valuing Ponds In The Urban Landscape

Urban landscapes demonstrate a variety of values to different user groups. Ponds are a particularly significant feature of urban landscapes in the Northwest of England. Previous research in the field has focused almost entirely on ponds in the countryside. This research aims to integrate the human values of nature with conventional ecology by investigating the values of ponds in urban areas and comparing and contrasting these values.

During 2004, 10 ponds were studied in the urban areas of Merseyside. Standard ecological survey techniques were applied to assess invertebrate, amphibian and plant diversity, using the Predictive SYstem for Multimetrics (PSYM) and the National Vegetation Classification (NVC). While a landscape character assessment technique was applied to describe the major features of the surrounding landscape and its amenity value. In addition fixed-point photographic data were collected for each site to assess aesthetic value. Results indicate the complexity of these issues for local communities. Species richness for both invertebrates and plants were lower than found in some studies of rural sites but still significant, while the visual features of ponds in the sample, varied considerable from formal to natural. Results demonstrate that ponds created and managed for amenity value can also be ecologically important.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Valuing urban ponds: The role of ponds in sustainable urban landscapes, their conservation, amenity, aesthetic value and impact on the quality of life
Supervisor	Dr Philip James & Dr David Davies
School	School of Environment & Life Sciences

Ogunbadewa, Ebenezer Yemi

Modelling Vegetation Change In A River Catchment With Multi-Sensor Remote Sensing Data

Vegetation plays a vital role in environmental quality; it filters pollutants in air and water, controls wind and solar heat gain, and stabilizes soil to prevent erosion. Temporal change in vegetation has implications on the environment and specifically for a river catchment. Changes in vegetation impact on catchment systems causing reduction in infiltration, low ground water recharge, high runoff rates, changes in hydrological regimes, increase in erosion and sedimentation. A better understanding of this can be achieved by modelling of vegetation change and hydrological responses with the use of remote sensing. The widespread availability of analytical data processing algorithms and geographic information systems allow merging of remotely sensed data with other spatial ancillary data types by the process of geospatial integration. This research aims to test the use of data from a range of Earth Observation satellites in extracting temporally dynamic catchment parameters and to carry out ground based measurements at a number of different test sites in NW England over 2005. These data will be compared with existing data on catchment hydrology.

The outputs from this research will be an improved method understanding of relationship between vegetation dynamics and catchment hydrology.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Modelling Vegetation Change In A River Catchment With Multi-Sensor Remote Sensing Data
Supervisor	Professor F.M.Danson
School	School of Environment & Life Sciences

Crowley, Jenny

Extraction of information on the vertical structure of turbulence in the urban mixed layer from Doppler lidar co-variance spectra

A prerequisite of models to calculate air pollution dispersion and mesoscale airflow is knowledge of the surface sensible heat flux and atmospheric stability. Direct observations of such variables in the boundary layer are rare, particularly in urban areas where making such measurements is likely to cause disruption to urban life.

Even when such measurements are made, they are commonly with point measurement instruments mounted on masts at various heights and at various locations. Although these measurements are usually accurate, they may not be fully representative of larger urban areas. Here, an eye-safe Doppler lidar is an ideal instrument to make area averaged measurements in the surface layer (lowest ~150 m of the atmosphere). Turbulence spectra over such areas are calculated and discussed.

Above the surface layer is the mixed layer, which extends to the top of the boundary layer. Field measurements of wind velocity structure in this layer are rare, however the Doppler lidar offers a technology capable of measuring to altitudes to the top of the mixed layer. It is thought that the feedbacks between energy fluxes of the surface layer and the mixed layer above can cause modification to urban circulation. Further study of this layer is required and an introduction is made here.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Investigation of urban boundary layer turbulence using Doppler lidar
Supervisor	Professor CG Collier
School	School of Environment & Life Sciences

Davison, Lisa

Bus Priority, Modal Shift and Traffic Decongestion

A more sustainable transport system requires effective alternatives to private cars. Despite more than 40 years of declining use, buses are still the main form of local public transport outside central London. Government policy focuses upon Bus Quality Partnerships – agreements between highway authorities and bus operators to give bus priority access and invest in better quality buses – to reverse this decline and also attract car drivers to change modes and ease urban traffic congestion

This paper assesses the potential for Quality Partnerships to provide a more attractive bus service with the ability to achieve modal shift using a Greater Manchester case study. Preliminary results are presented from a comparative study of two Quality Bus Corridors (QBCs), one arterial route into Manchester's Central Business District and one transverse from Leigh to Bolton. The research uses bus user interview surveys and in-depth interviews, which focus upon non-bus users

Results of this research show that Bus Quality Partnerships when introduced as a stand-alone policy struggle to achieve significant modal shift and traffic decongestion. Most bus passengers and car users remain unaware of Bus Quality Partnerships.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Quality Bus Partnerships Potential to Achieve Government Objectives and Reduce Traffic Decongestion through Modal Shift
Supervisor	Professor Richard Knowles
School	School of Environment & Life Sciences



University of Salford
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SPARC 2004 The Sessions

Group A3 14:00-16:00 Pankhurst Room

Yun Chen

(Research Institute for the Built and Human Environment)

James Howard Jeffrey

(Research Institute for the Built and Human Environment)

Emeka Efe Osaji

(Research Institute for the Built and Human Environment)

Jerry Taylor

(Research Institute for the Built and Human Environment)

Chen, Yun

Designing the User-Interface for Effective Interaction with E-planning Systems Using Human-Centred Approach

Urban planning is playing an important role in achieving sustainable city development. With the development of Information Technology (IT), more and more digital systems are applied in urban planning process, which refers to e-planning systems. Building IT-based e-planning systems has been considered as a way to ensure an efficient and effective urban planning process, which can encourage public participation and make planning more transparent and more easily understood for interested citizens. As a result, there is a growing need for publicly access to these e-planning systems. During the design process of these systems, the hardware in use is only one aspect that needs be considered. Trying to understand the user is also essential to make system knowledgeable, sensitive to public's needs and exhibit intelligence. This ongoing research is trying to use human-centred approach to enhance the interaction with e-planning systems for public participation in urban planning process. A prototype of interface will be built based on this approach. In this presentation, the research background, aim, objectives, methodology, scope and the current outcomes from this research will be discussed one by one.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Designing the User-Interface for Effective Interaction with E-Planning Systems using Human-Centred Approach
Supervisor	Andy Hamilton
School	School of Construction & Property Management

Jeffrey, James Howard

Appreciation of hospital patient condition by restricting architects mobility/vision

Hospital rooms are generally designed by architects who are healthy able-bodied individuals. Hospital patients have often experienced varying degrees of loss of mobility and vision due to illness, trauma or ageing. Designs would benefit from the architect gaining an insight into the patient condition. This has been achieved by the fabrication of a 'mobility restricting bodysuit'. The architect wears the bodysuit, which has a comprehensive set of movement restricting mechanisms for most joint articulations and special spectacles to impair vision. During an experiment the architectural subjects wearing the suit, undertook a series of planned activities within a real built hospital environment. The activities were performed both in and out of a wheelchair in a simulated way as to how a patient would have to do them. Immediate feedback was obtained in the experimental trial; for example, difficulties were experienced in being able to open doors, reach paper towels or into wardrobes. Also the reduced vision caused dis-orientation, loss of reference features and inability to distinguish contrasts. By using the built environment as a patient would have to, the architects have been able to identify potential problems and design them out. This has improved the overall hospital design quality from the patient perspective.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	Hospital Design Quality
Supervisor	Dr Peter McDermott
School	School of Construction & Property Management

Osaji, Emeka Efe

The Importance Of The Spheroid Form In The Architectural Morphology Of Twenty-First Century Office Buildings

“Logic has interests in abstract forms. Science investigates extant forms. Design initiates novel forms” (‘The Architecture of Form’ by Lionel March, Cambridge University Press 1976). Historically, civilizations have been influenced by architectural morphology, such as; the Pyramidal Towers built by ancient Egyptians over 4,000 years ago, the Roman Colosseum begun by Vespasian, inaugurated by Titus and completed by Domitian between 70 AD to 82 AD, the Geodesic Dome invented by Buckminster Fuller in the late 1940s, the Atomium in Brussels completed in 1958, the Space Needle in Seattle completed in 1962, the Eiffel Tower in Paris inaugurated in 1889, and the contemporary Swiss Re Tower in London completed in 2004.

My study aims to achieve the following:

- Investigate how the spatial configuration of a building persistently affects its use patterns
- Investigate how the structural layering of a building makes it more adaptable
- Investigate the generic methodology and conceptualization of the spheroid form
- Investigate the energy efficiency, bioclimatic, structural, spatial, aesthetic and other characteristics of the spheroid in order to evolve a sustainable twenty-first century office form

I intend to undertake this study through research into nature, publications, designs, ideas, discoveries, documentations, influences, philosophies and theories.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	The Importance Of The Spheroid Form In The Architectural Morphology Of Twenty-First Century Office Buildings
Supervisor	John Hudson
School	School of Construction & Property Management

Taylor, Jerry

The application of HACCP principles to the independent restaurant sector of the catering industry

To evaluate the application of an appropriate food safety model for the independent restaurant sector of the catering industry. Putting the intervention into context through an analysis of the industry, personnel, industry food safety position and current perceptions of food safety. Investigating relevant factors for successful implementation of the new food safety model. Identifying training needs to meet competence in food safety practices through the implementation of the model.

Research Institute	Research Institute for the Built & Human Environment
Thesis Title	The application of HACCP principles in the independent restaurant sector of the catering industry
Supervisor	Professor Eunice Taylor
School	School of Leisure, Hospitality & Food Management



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Group B1 10:30-12:00 Bronte Room

Xin Shi

(Management and Management Sciences Research Institute)

Armin Krishnan

(European Studies Research Institute)

Yan Xing

(Management and Management Sciences Research Institute)

Ruth Craggs

(Management and Management Sciences Research Institute)

Shi, Xin

Stochastic Modeling In Sport For Prediction Match Outcomes

At Leeds in the 4th Ashes Test Match in 2001, Australia declared their second innings and set England a final innings target of 315. England won. This is an indicative example of the cautiousness of decision making in sport at the highest level that could benefit from mathematical statistics.

Across the spectrum of sports, statistics could be a powerful tool for analysis. In this talk, we will discuss how statistics can contribute in cricket, and other sports. Many parties from managers to players to betting companies are of interest to predict the outcomes of sporting matches. A match outcome model is suggested for decision making during matches. The application is illustrated through the example of test cricket, with the real sporting data appropriate for the setting of the stochastic processes and multinomial logistic regression model.

Research Institute	Management and Management Science Research Institute
Thesis Title	Stochastic modeling in sport for prediction match outcomes
Supervisor	Dr Philip Scarf
School	School of Accountancy, Economics & Management Science

Krishnan, Armin

Killer Robots: War in the Age of Automation

This presentation explores the reality and dangers of intelligent weapons, which already exist and which are currently under development. The paper will try to define autonomous weapons and will trace back the history of such weapons from their early beginnings in WW2 to SDI and present day UCAVs. It will further briefly sketch the ongoing Revolution in Military Affairs and will outline the main advantages of autonomous weapons, which might make them a necessity for future warfare. Some argue that the emergence of high-speed and high-tech warfare because of the information revolution will lead to more and more automation in order to overcome human limitations. After an overview of presently used and developed systems, I will attempt to look at the future and point at some dangers and implications of the trend towards post-human warfare. Some issues are: what happens if an autonomous weapon fails and kills innocents? Who is responsible, who is liable? What dangers lie in the possibility that some states can conduct military operations with impunity against states, which are less technologically advanced? Will the use of robots escalate conflicts, as neither they, nor their masters feel the pain and stress that comes with human warfare? The most frightening danger is that autonomous weapons could turn against their masters and run amok. Because of the apparently unstoppable technological progress, we will have to come to terms with how we want to use intelligent machines and whether we really should want to turn them into weapons.

Research Institute	European Studies Research Institute
Thesis Title	Military Privatisation and the Revolution in Military Affairs
Supervisor	Dr N. Gardner
School	School of English, Sociology, Politics & Contemporary History

Xing, Yan

Modelling tourism labour flow - a system dynamics perspective

The tourism labour market is an extremely complex phenomenon. Issues such as the high turnover rate in the tourism labour market, dynamic interactions with agriculture, migrant labour and the demographic structural changes all have significant influence on tourism labour flow and thereafter sustainable tourism development. Much of the science and policy debate around the tourism labour flow has focused on models. Most models focus on a single aspect of labour flow. This paper, as one chapter of a PhD dissertation, seeks to model the tourism labour market by a continuous time state model focusing on feedback interactions. The main objective of the modelling is to draw a holistic picture of the tourism labour flows, and to explore the impact of structural changes to the model specification. The impact of exogenous population and tourism volume dynamics is tested.

The proposed modelling process consists of the following steps:

- To analyse the main issues in the tourism labour market.
- To identify the structure of tourism labour flow.
- To analyse the impact of changing circumstances (such as changing tourism volumes, demographic changes) on employment in tourism, and the possible effects upon employment in tourism of changing government policies.
- To identify high leverage policies that can improve stability without degrading other aspects of the sustainability.

Research Institute	Management and Management Science Research Institute
Thesis Title	Sustainable tourism development modeling
Supervisor	Professor Brian Dangerfield
School	School of Accountancy, Economics & Management Science

Craggs, Ruth

Towards the Development of an Analytical Framework for Measuring the Economic Impacts of Dockland Regeneration: The Case of Salford Quays

Tourism is a major industry, capable of generating substantial economic benefits to host regions and communities (Law, 1993). Greater Manchester's tourism industry has burgeoned in recent years and eclipsed the area's traditional industries and become widely perceived as a vehicle for further regeneration. The Quays area of Salford, the former dockland area of the city, has been repositioned using a formula based on a mix of commercial, residential and touristic elements, but as yet, its economic impacts have escaped quantification. Estimating economic benefits is an important component of comprehensive tourism impact analyses. However, despite the quantity of research output relating to the measurement of tourism's economic impacts, a consistent and comprehensive methodological framework has not yet been developed (Crompton, 1999; Stynes, 1999).

The paper is concerned with the construction of an appropriate conceptual model and associated research methodology to effectively measure the complex local economic impacts of urban regeneration at the Quays development in Salford. The specific focus of the study is to analyse expenditure / direct economic impacts at the Quays and the number of jobs in the local community that tourism supports relative to other sectors. Given the local nature of the study and the size of the Quays' economy, it is proposed that the Quays' economic impacts can be estimated more appropriately by using an analytical framework that focuses on the quantifiable local economic impacts (Gelan, 2003).

Research Institute	Management and Management Science Research Institute
Thesis Title	The Socio-Economic Impact of the Regeneration of Salford Quays
Supervisor	Dr Peter Schofield
School	School of Leisure, Hospitality and Food Management



University of Salford
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SPARC 2004 The Sessions

Group B2 10:00-12:00 Bronte Room

Azurah A Samah
(Management and Management Sciences Research Institute)

Burairah Hussin
(Management and Management Sciences Research Institute)

Hairudin Abdul Majid
(Management and Management Sciences Research Institute)

Alex Avramenko
(Management and Management Sciences Research Institute)

Hussein Al-Salimy
(School of Computing, Science and Engineering)

A Samah, Azurah

Improving Operational Effectiveness at Vehicle Inspection Centre in Malaysia

This research is concerned with how greater efficiency and throughput in a vehicle inspection centre (VIC in Malaysia) can be achieved by using operational research techniques. The VIC operated by PUSPAKOM carries out commercial vehicle inspections according to road transport rules which are set by Malaysian government. Greater efficiency and throughput are required at the VIC due to the increasing number of vehicles that undergo inspection, local road transport rules (fixed inspection policies and fees, inspection frequency which is twice yearly) and environmental factors in Malaysia (public, state and religious holidays). Basically, there are three causes of variable workload at the VIC, namely the practice of vehicle's owner, the Road Transport Department rules and the VIC operations. This research discusses how various techniques of operational research (simulation, vehicle appointment scheduling and maintenance of inspection equipment) can be applied to model and improve the overall operational effectiveness in the VIC.

Research Institute	Management and Management Science Research Institute
Thesis Title	Optimizing Overall Operational Effectiveness to Satisfy Variable Demands at a Vehicle Inspection Centre
Supervisor	Professor A.H.Christer and Dr D.F.Percy
School	School of Accountancy, Economics & Management Science

Hussin, Burairah

A Comparison Study between Statistical Process Control Models and the State Prediction Model Identifying the Initial Point Of A Random Defect in Condition Based Maintenance

Condition based maintenance is growing in popularity in industry and has demonstrated its potential to enhance the effectiveness and efficiency of maintenance management. One of the problems a maintenance manager may have is the identification of the system state given observed condition monitoring information. In particular he/she may be interested in when is the initial point of a random defect might happen. This paper reports a comparison study of identifying such random point of defect initiation, two approaches are compared, namely the Statistical Process Control based approach and the state prediction model based on Hidden Markov model and stochastic filtering technique. It is concluded from the study that the later has the advantages of not requiring a pre-set threshold level and can be applied to small data set.

Research Institute	Management and Management Science Research Institute
Thesis Title	Development of the State Prediction Model to Aid Decision Making in Condition Based Maintenance
Supervisor	Dr Wenbin Wang and Professor A.H. Christer
School	School of Accountancy, Economics & Management Science

Abdul Majid, Hairudin

Application of OR to problem in Extended Warranty Modeling: A Case studies on automobile an extended warranty in Malaysia

Extended warranty: The warranty is an integral part of product sale is called the base warranty. It is offered by the manufacture at no additional cost and is factored into the sale price. Extended warranty provides additional coverage over the base warranty and is obtained by the buyer by paying the premium. Extended warranties are optional warranties which are not tied to the sale process can be either offered by the manufacturer or a third party.

This research will involve MTB (Malaysian Truck and Bus Bhd) as a research collaboration case study. The benefit for the MTB is on the warranty policy, whilst they can provide warranty claim data, this is for model and analysis purposes. Since the data for vehicle age and usage are available from MTB, this research will focus on “two dimensional warranty policies”.

The purpose of this study is to make a contribution to the establishment of a method for determining the suitable price and period for the extended warranty. By extend the policy from one year to two year can be raise the consequences for example increase the cost of warranty claim and we need to estimate this for the future. On the other hand is increase sale, it happened when the customer have high acceptance for MTB products. Furthermore, to make a balance decision, by knowing the cost of warranty in extended warranty policy. We can estimate the increase cost of warranty and also the figure of increase revenue. We will support this research with OR approach because of so many decisions can be involved in future.

This research examines several issues related to automobile extended warranties. The first objective of this research is to develop a valid and tested extended warranty model for an extended warranty policy for Malaysian Truck Bhd (MTB). Second, is to determine the future consequences and cost of warranty provision for the current warranty policy within MTB. Finally, to contribute in the literature a warranty modeling, management and OR approach in extended warranty area.

Research Institute	Management and Management Science Research Institute
Thesis Title	Statistical analysis of warranty data in order to predict the future warranty exposure for an extended two dimensional warranty
Supervisor	Professor A.H. Christer and Dr P.A Scarf
School	School of Accountancy, Economics & Management Science

Avramenko, Alex

Meaning of Inspiration in Management

The prospective research is going to examine the potential role of inspiration within modern work organisations. It queries inspiration as a state of mind of human beings, its essence and the sources. The interrelations of inspiration with other concepts of the organisational context, such as motivation, influencing, involvement, etc., are to be explored.

Taking into consideration recent developments in the field of motivation, namely attribution theory, an individual's perceptual process a connection between inspiration and motivation is to be analysed. Furthermore, the implications for the management practices are to be challenged.

The possible outcomes of the research are expected as a combination of a contribution to the general understanding of inspiration as a phenomenon in an organisation. Further, the possibility and desirability of inspiration, as an organisational or managerial resource will be explored.

Research Institute	Management and Management Science Research Institute
Thesis Title	Examining the role of inspiration within modern work organisations
Supervisor	Dr R. Macdonell
School	School of Management

Al-Salimy, Hussein

Tomorrow's Network Technology

Networks have become an indispensable resource that keeps corporate departments and employees working together smoothly. But they are hardly static business tools. Networks are constantly growing and changing to meet business needs with emerging technologies.

My paper is concerned with an investigation into the technology of tomorrow's Networks.

School
Programme

School of Computing Science and Engineering
MSc Data Telecommunications and Networks



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

A decorative blue line with a starburst at the center, connecting the '2004' and 'The Sessions' text.

Group B3 14:00-16:00 Bronte Room

Dimitra Vernardou
(Institute for Materials Research)

Ian Owens Pericevic
(Institute for Materials Research)

Jungang Huang
(Institute for Materials Research)

James Christian
(Institute for Materials Research)

Vernardou, Dimitra

Doped Vanadium Oxides Prepared by Liquid Injection MOCVD

Atmospheric pressure liquid injection MOCVD was used for the deposition of tungsten doped vanadium (IV) oxide coatings. The deposition was carried out on commercial SiO₂-precoated glass using 0.1 M solution of vanadyl acetylacetonate (VO(acac)₂) in methanol (CH₃OH) at 0.02 L min⁻¹ and 0.04 L min⁻¹ oxygen flow rates at 450 °C and 0.8, 1 and 2 at % W using W(OC₂H₅)₅. The crystallinity, uniformity, oxidation phase, optical properties, composition and morphology of the films were evaluated by X-ray diffraction, IR reflectance-transmittance, Raman spectroscopy, Rutherford backscattering spectroscopy and scanning electron microscopy respectively. The relationship between dopant concentration and transition temperature (T_c) in the most applicable range for solar window coatings was refined by formation of a single-phase film and precise determination of these parameters. Results obtained demonstrate a reduction in thermochromic T_c from 60 °C in VO₂ to 35 °C in V_{0.98}W_{0.02}O₂.

Research Institute	Institute for Materials Research
Thesis Title	The Growth of Thermochromic Vanadium Dioxide Films by Chemical Vapour Deposition
Supervisor	Professor M. E. Pemble
School	School of Computing, Science & Engineering

Owens Pericevic, Ian

Validation of LS-DYNA for Blood Vessel Applications: Initial Results

The high mortality rates associated with vascular diseases, complexity of the system and the inability of medical equipment to provide necessary *in vivo* data make numerical modelling of vascular problems an important factor in modern medicine. This paper examines the capabilities offered by the explicit dynamics FSI algorithms in LS-DYNA for solving problems in vascular biomechanics. The onset of a physiological pulse was simulated at the entrance of a straight segment of artery and the resulting dynamic response in the form of a propagating wave through the vessel wall was analysed. Initial results indicate that despite problems posed by hourglassing in the model, LS-DYNA has the potential to offer reliable results for values of Young's modulus in the physiological range. Future work is to concentrate on expanding the range of Young's moduli the model is valid for as well as for designing a large scale model of the physics of a blood vessel.

Research Institute	Institute for Materials Research
Thesis Title	Blood Vessel Fluid Structure Interaction
Supervisor	Dr M Moatamedi
School	School of Computing, Science & Engineering

Huang, Jungang

Spontaneous Fractal Spatial Pattern Formation

Complexity focuses on commonality across subject areas and forms a natural platform for multidisciplinary activities. Typical generic signatures of complexity include: (i) spontaneous occurrence of simple pattern (e.g. stripes, hexagons), emerging as a dominant non-linear mode, and (ii) formation of highly complex pattern in the form of a fractal (with structure spanning decades of scale). However, to our knowledge, the firm connection between these two signatures has not previously been established. This is perhaps not surprising since system non-linearity tends to impose a specific scale, while fractals are defined by their scale-less character. Here we report a generic mechanism for spontaneous fractal spatial pattern formation; this mechanism has independence with respect to both the particular form of non-linearity and the particular context of the non-linear system.

Research Institute	Institute for Materials Research
Thesis Title	Generation and application of fractal laser light
Supervisor	Dr Graham. S. McDonald
School	School of Computing, Science & Engineering

Christian, James

Light Guiding Light Guiding Light: A New Angle

The propagation of spatial optical solitons – that is, non-diffracting beams – in a dielectric waveguide is routinely described by the Non-Linear Schrödinger (NLS) equation. This is a universal model for describing soliton phenomena, and occurs in many diverse branches of physics. However, NLS-based models suffer from potentially severe physical limitations in some regimes. For example, they cannot support multiple waves propagating at arbitrarily large angles with respect to the reference direction, or the interaction of these waves. Here, we present a brief overview of some aspects of Helmholtz soliton theory. This non-paraxial framework extends conventional soliton theory, and offers a full description of non-linear waves over the complete range of angular regimes. Consideration of angular aspects of the wave propagation problem gives rise to novel, non-trivial physical effects that have no counterpart in paraxial theory.

Research Institute	Institute for Materials Research
Thesis Title	Helmholtz Spatial Soliton Theory
Supervisor	Dr G.S. McDonald
School	School of Computing, Science & Engineering



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Group C1 10:30-12:00 Gaskell Room

Alexeis Garcia
(Informatics Research Institute)

Normahiran Yatim
(Informatics Research Institute)

Aleksej Heinze
(Informatics Research Institute)

Glynis Whitehead
(Institute for Health and Social Care Research)

Tolulope Adekoya
(School of Computing, Science and Engineering)

Garcia-Perez, Alexeis

Helping Researchers To Efficiently Extract And Produce Valuable Knowledge From The Existing Wealth Of Knowledge Resources

It is argued that the dynamic of technology developments over the last decade has made an overwhelming amount of information and knowledge available to the scientific community. The Open Access Publishing movement has been one of the main drivers of such a growth in the quantity of scientific information available. Developments in knowledge representation strategies and techniques have also increased the researchers' abilities to disseminate the new knowledge resulting from their work. Hence, there is a need for more proficient information search and retrieval tools and techniques responding to the evolution in knowledge availability and thus addressing the satisfaction of users' needs.

The research described in this paper focuses on those and other issues with the aim to develop a knowledge search and retrieval platform which allow researchers to efficiently access published knowledge, making it easier for them to extract the resources needed from repositories in order to produce new scientific knowledge.

A model of scientific research in relation to publishing and retrieving scientific knowledge will be developed with an existing approach as a starting point. The new model will be taken as a basis for the development of a conceptual framework upon which an improved ontology enabled searching interface will be implemented. The new tool will also be based on an existing knowledge repository and will use ontologies as a mean to provide a better understanding of user profiles. Topics like Open Publishing, Second Generation Knowledge Management and Ontology-based Knowledge Management Systems are being studied. Users are involved in different stages of the research, from the definition of their information needs and publishing practices to the testing and evaluation of the developed tool.

Research Institute	Informatics Research Institute
Thesis Title	Using Ontologies to improve the Scientific Knowledge Retrieval and Production
Supervisor	Professor Yacine Rezgui
School	School of Computing, Science and Engineering

Yatim, Normahiran

Challenges of evaluating Accounting Information Systems within the SME sector

Over the last few decades accounting information systems (AIS) has been recognized as being important in contributing to the success of business organizations. Research within AIS demonstrates that although large organizations are able to realize benefits from investments into developing bespoke systems, little is known of AIS use within the SME sector. A primary characteristic of evaluation studies of AIS has been the overemphasis of quantitative measurements. Given that competitive advantage of SMEs are heavily dependent on associative dimensions, it would be important to use qualitative evaluation as an appropriate mechanism to estimate potential. For instance, impact of AIS on the decision-making process, capabilities and skills of IS executives and accountants in AIS design and implementation, quality and value of information reported and distributed to internal and external parties, are among aspects that outline significant indicators to evaluate success of AIS. It is important for businesses, regardless of their size to be provided with an effective measurement for assessing usefulness of the adopted AIS. This paper begins by providing collective reviews and critiques of AIS evaluation techniques used among well-known studies in the available literature. Subsequently a framework for effectively evaluating adopted AIS within the SME sector will be derived. Such a framework would capture primary elements important for effective evaluation of AIS beneficial to various related parties in a generic SME. For business managers and IS executives, key issues of the framework would be likely to suggest general directions that must be emphasized on the evaluation process as well as for AIS implementation in business.

Research Institute	Informatics Research Institute
Thesis Title	Contributions of Accounting Information Systems on Organizational Performance: Case of Malaysian SMEs
Supervisor	Dr Amit Mitra
School	School of Computing, Science & Engineering

Heinze, Aleksej

Critical perspective on Action Research for Postgraduate Researcher

Action Research (AR) is one of the frameworks considered by researchers for their work whilst trying to combine their duties and research into one. It is argued that despite the numerous drawbacks of Action Research it is a viable framework for generation of theory and practically implementing changes in PhD research.

Literature review will be conducted which will investigate the issues associated with action research and the way AR is suggested to be operationalised.

This research focuses on the case of a Graduate Teaching Assistant within the University of Salford who supports and researches a course delivered in Blended Learning. Action research, with its historical roots in education, is adapted to enable reflective practice by providing a diagnosis-reflection-action framework.

Research Institute	Informatics Research Institute
Thesis Title	Blended Learning through Conversational Framework
Supervisor	Chris Procter
School	Information Systems Institute

Whitehead, Glynis

Facing the Challenge: Learning Disability Nurses Working in a Health Facilitation Role

Background:

The 2001 White Paper, 'Valuing People' drew attention to the inequalities in health priorities for people with learning disabilities. It introduced the concept of using health facilitators to enable access to mainstream services and suggested that learning disability nurses 'would be well placed' to take on this role. In this paper I will report on data from an exploratory study into the thoughts, feelings, and behaviours arising in a small team of learning disability nurses working in a health facilitation role.

Method:

The study was a documentary analysis of reflective diaries based on 'Kolb's Cycle of Learning' (Kolb 1984). Data was collected from a purposive sample of 5 learning disability nurses participating in a 6 month long project aimed at facilitating access to mainstream cervical screening programmes by women with learning disabilities.

Outcomes:

Findings will be presented which illustrate the ways in which learning disability nurses experience the health facilitation role, including:

- Fear of challenging perceived authority figures.
- Stress.
- Vulnerability, isolation and powerlessness.
- Change.
- Anxiety due to lack of role clarity and leadership.
- Lack of professional self-confidence.

Implications:

The training and support needs of learning disability nurses working in a health facilitation role need to be acknowledged and addressed.

Research Institute	Institute for Health and Social Care Research
Thesis Title	An examination of the role of health facilitation in learning disability services
Supervisor	Dr Duncan Mitchell
School	School of Nursing

Adekoya, Tolulope Daniel

Bridging the Gap Between Bar Code Legacy System and RFID in User Access, Library Books Authentication and Identity Cards

RFID; more than a bloodless revolution, one of the most promising and anticipated technologies in recent years. Magazines, articles, television shows, documentaries and the likes are trumpeting the inherent potential benefits. RFID is a flexible technology, easy to use and well suited for automatic operation. It combines the advantages not available with other identification technologies in that it does not require contact or line of sight between reader and object to be identified, and also enables multiple tags to be read simultaneously and provides high level of data integrity.

This paper describes the RFID technology, how it works, its current standard and compliance environment to exploit its adoption for bar code replacement or a possible merger in applying it to user access, library books authentication and for identity card purposes. Key issues and limitations are also presented.

The challenge is to investigate the possibility of bridging the gap between what is working today and extending the role of Auto-ID technology in a fully integrated, open style system that incorporates the most appropriate devices and IT architecture.

School
Programme

School of Computing Science and Engineering
MSc Data Telecommunications and Networks



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Group C2 10:00-12:00 Gaskell Room

May Jarjour
(European Studies Research Institute)

Teresa Adair
(Institute for Social, Cultural and Policy Research)

Mark Cornock
(European Studies Research Institute)

Yuliya Khmel'nitskaya
(Management and Management Sciences Research Institute)

Jarjour, May

The Translation Of Modality Between Arabic And English In The Language Of The News

In today's world which is characterised by rapid mass communication, the issue of the increasing need for translation becomes more and more prominent particularly with regards to political issues. In this context, the language of global news bears special significance because the news are widely circulated around the globe at astonishing speed and because the interdependence and contact among the different nations has become a feature present in the contemporary world more than in any other period of time due to extremely sensitive issues such as terrorism, war, peace and economic development.

The present paper will address the translation of political discourse between Arabic and English with special reference to the use of modality in the language of the news. The discussion aims at investigating the application of Relevance Theory as developed by Wilson and Sperber (1986/1995) to translating modality and Gutt's (2000) approach to linking relevance and translation. The central notion is going to be that translators of political texts and specifically news reports manipulate the relevance of the news to their audience, so that the news become relevant to the target audience in a way that is different from the relevance they bear to the source audience.

Research Institute	European Studies Research Institute
Thesis Title	A relevance-theoretic approach to the translation of modality between Arabic and English in the language of the news
Supervisor	Dr Myriam Carr
School	School of Languages

Adair, Teresa

Interaction of philological and theological concerns in the early work of Gerard Manley Hopkins

This paper is the result of preliminary research for a thesis on the understanding of sacrifice as found in the writings and poetry of Gerard Manley Hopkins. Its aim was to situate Hopkins within the theological and philological concerns of his day. Both Hopkins' early writings and poetry show active engagement with these concerns and whilst it has been said that 'the study of language serves [little] to elucidate Hopkins' trials of religious allegiance', (Cary Plotkin, 1989), my research, as presented in this paper, finds otherwise.

The rejection of Comparative Philology until the mid -nineteenth century allowed the focus to remain on etymology: words investigated for their original meaning, with the corollary that meaning may be unmediated and immanent. Hopkins' early journals show evidence of this concern.

In the Protestant meta-narrative however, as espoused by Hopkins and his intellectual milieu, post-lapsarian language cannot signify the signified, but this possibility is allowed by the Catholic dispensation. Here mankind is fully restored to God-worthiness by Christ's sacrifice. Christ's invitation to repeat his sacrifice proves this, simultaneously allowing words perfect signification.

As Hopkins moves towards Roman Catholicism his pre-conversion poetry reflects an evolving system of thought in which philological concerns interact with theological beliefs.

Research Institute	Institute for Social, Cultural and Policy Research
Thesis Title	Sacrifice in the Writings and Poetry of Gerard Manley Hopkins
Supervisor	Dr Andrew Cooper
School	School of English, Sociology, Politics & Contemporary History

Cornock, Mark

Pun Interpretation – A Reanalysis of the Relevance Theoretic Perspective

This paper will examine the linguistic phenomenon of puns and analyse the interplay of form and context in their successful interpretation from a relevance theoretic approach to communication. Tanaka's (1994) account of pun interpretation cannot accommodate certain advertisements because of her underlying assumption that hearers of puns are only required to recover one interpretation. I will demonstrate that certain puns intentionally exploit our cognitive ability to simultaneously access and interpret a number of contradictory propositions. I demonstrate this possibility through the use of data collected which use puns, and illustrate that this phenomenon is not restricted to puns alone, but also applies to further linguistic phenomena, e.g. jokes. Since puns are an example of the way that speakers may create stylistic effects by deliberately setting the hearer processing challenges, this work has implications for the pragmatics of style. However, the implications of this paper extend beyond stylistics, for it also addresses questions about the way we approach the cognitive processes involved in disambiguation.

Reference

Tanaka, K. (1994) *Advertising Language: a pragmatic approach to advertisements in Britain and Japan*. London: Routledge.

Research Institute	European Studies Research Institute
Thesis Title	Textual and Visual Challenges to the Cognitive Principle of Relevance: Communication and Style
Supervisor	Professor Diane Blakemore
School	School of Languages

Khmelnitskaya, Yuliya

What the Gambling Bill brings to Britain

There is a forthcoming gambling industry deregulation expected to take place in the UK in the near future. Perhaps it is not going to be as dramatic as it was initially anticipated, as we have gathered from the recent governmental reports such as Scrutiny Committee Report, however, it is still likely to considerably shake up existing gambling industry players, allowing international competition in to the market and granting greater flexibility to the existing domestic companies.

Recent opinion survey studies have shown that public perception is predominantly positive about gambling activities in the UK. 88.7% of respondents to the survey had taken part in one or more gambling activity, most of them play the National lottery and scratch cards, as The National Centre for Social Research reported. Gambling participation and expenditure are still expected to double in the UK from the current level of around 1% of disposable income (Marx, 2002). Some expect say that together with the positive economic effects it might also lead to an increase in negative externalities such as an increase of pathological gamblers and problems associated with their addiction (Eadington, W. R., 1996).

The purpose of my research is to investigate the contribution of cost-benefit analysis to assessing public policies such as to what degree gambling industry should be regulated and how, in the best interests of society it may be composed. The results from econometric analysis of Australian data, which could illuminate the British deregulation case, give a preliminary impression that there is a genuine increase in total demand for gambling rather than a simple change of composition within the gambling sector. However, it appears that introduction of high prize gambling machines will still affect demand for lotteries, which is at the moment the heist source of revenues for government.

Research Institute	Management and Management Science Research Institute
Thesis Title	Cost-Benefit Analysis of Gambling Industry Deregulation in the UK
Supervisor	Dr David Forrest
School	School of Accountancy, Economics & Management Science



University of Salford
Research and Graduate College

SPARC 2004 The Sessions

Group C3 14:00-16:00 Gaskell Room

George Papoulakis
(Informatics Research Institute)

Philip Holt
(Informatics Research Institute)

Marina Economidou
(Adelphi Research Institute for Creative Arts and Sciences)

Ian Guthrie
(Informatics Research Institute)

Papoulakis, George

Text identification in realtime low-resolution video

Visitors to an unknown place or unfamiliar territory can find a difficulty in navigating streets and identifying landmarks. This situation can potentially be improved if an instant translation of foreign text is provided, which can assist and relieve the user while he is occupied with a parallel task such as walking. Nowadays the necessary wearable computing technology exists to build a lightweight portable computer system equipped with a camera and a head-mounted display that can instantly identify text within the user's field of view and provide a translation of that in another language. The system presented here utilises techniques of Image Processing and Pattern Recognition to analyse low resolution video images in real time and carry out a fast and simple technique to detect, extract, binarise and recognise textual and pictorial information in video images of signs found on the university campus. With the use of graphics then a meaningful translation of that textual or pictorial information is displayed in another language on a head-mounted display.

Research Institute	Informatics Research Institute
Thesis Title	A portable augmented reality system for recognising street signs
Supervisor	Professor Tim Ritchings
School	School of Computing, Science and Engineering

Holt, Philip

If CERT/CC Can't Get It Right, "then who can?"

If CERT cannot circumvent these types of unauthorized network intrusion, "then who can?"

CERT/CC, one of the most important reporting centers for Internet security problems, has been offline sporadically Tuesday and Wednesday due to a distributed denial-of-service attack.

News of the attack on CERT/CC comes only a day after a group of researchers at the University of California at San Diego said in a report that over 4,000 DoS attacks are launched every week.

"We get attacked every day," said Richard Pethia, director of CERT/CC. "The lesson to be learned here is that no one is immune to these kinds of attacks."

A distributed denial-of-service attack, such as the one CERT/CC is experiencing, comes when an attacker has taken over multiple PCs, called zombies, through hacking or viruses, and uses them to simultaneously attack the victim.

This paper deconstructs the social implications of such attacks. It examines how these attacks effect us all from the perspective of digital criminology, under the macro-lens of social justice, legal justice and natural-moral justice.

Time permitting, we will look at other examples of distributed denial-of-service attacks and the people behind them

- MafiaBoy & Ebay
- David Dittrich & The University of Washington
- Law Enforcement: The RCMP & FBI

Research Institute	Informatics Research Institute
Thesis Title	A Digital Cosmopolis "For the 21st Century & Beyond"
Supervisor	Dr Andrew Basden
School	School of Computing, Science & Engineering

Economidou, Marina

Creativity of industrial designers with emphasis on selection

A lot has been written about creativity and designers but not about how to select industrial designers for creative work in new product development. Understanding how designers are selected for creativity is useful not only for developing theory but for the designers themselves, their prospective employers, students of product design and anyone interested in selection for creativity. A series of qualitative and quantitative studies revealed that selection by assessment of the skills that represent creativity for industrial designers in a particular company (in addition to examining the portfolio of work) offers a more holistic solution to the selection of industrial designers for creativity.

Research Institute	Adelphi Research Institute for Creative Arts & Sciences
Thesis Title	Creativity of industrial designers with emphasis on selection
Supervisor	Professor Rachel Cooper
School	School of Art and Design

Guthrie, Ian

Intelligent Registration of Retinal Images Using Fuzzy Logic to Aid Detection of Retinal Diseases

Based on the premise that early detection of retinal diseases such as glaucoma and diabetic retinopathy rapidly increases patient's chances of retaining their sight. Research into a visualisation system to detect these conditions is an important addition to ophthalmology. To detect retinal conditions, images are taken of the patient's retina over a time-lapse period (6 months)

The research attempts to devise a system to allow the registration (spatially alignment) of full colour, high-resolution retinal images taken over a time-lapse period. Using the resulting registered images, difference calculations attempt to show changes that have occurred.

Using image processing and artificial intelligence techniques information about the structure of a retina is constructed. A map of the vessel structure within two images can be calculated. A cross correlation technique is used to obtain a spatial transformation between the two vessel maps aligning the images together.

The process introduces fuzzy logic as a means of efficiently segmenting the vessel structures within the image from background data. The fuzzy logic technique expands on traditional research using edge detection and intensity profiles to map the vascular structure of the retina.

The resulting alignment between the two images allows the identification of changes that have occurred between the two images.

Research Institute	Informatics Research Institute
Thesis Title	Intelligent Registration and Analysis of Retinal Images
Supervisor	Professor T.Ritchings
School	School of Computing, Science & Engineering