IMA Seminar Series 2012/2013

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16/10/2012, 12-2pm, Room C01

Jenna Reps: A Novel Algorithm to Detect Rare Prescription Side Effects

Conventional algorithms that generate signals for potential side effects may require many thousands of patients to take a drug before producing a signal for a rare side effect and it is even possible that they will never generate a signal for some rare side effects. As these rare side effects often result in patient morbidities or mortalities it is important to identify them efficiently. In this presentation I will summarise a longitudinal dataset known as The Health Improvement Network database and discuss the potential of discovering rare side effects by mining this database. I will then describe a novel semi-supervised algorithm that uses known common side effects to train a model that can be used to identify the rare side effects and present tentative results.

23/10/2012, 12-2pm, Room C01

Kamal Achuthan: The use of simulation as a tool for developing resilience of ports

Sea ports are critical nodes in the global supply chain network. Their disruption can cause large fluctuations in supply chain and economic loss to nations, particularly to islands such as the UK. However, ports are vulnerable and major disruptions can occur due to reasons such as infrastructure failures, accidents, extreme weather conditions and terrorism. Hence, ports need to be resilient to threats for the sustainability of global supply chains and for the local economy. However, the resilience of ports relies on the multiple stakeholders that make up the system and their complex interdependencies. Risk management for such systems needs emphasis on ‘unbounded risks’, that is, risks that are associated with dependencies on other organisations and their activities. A research project ‘Risk taking for Resilience’ is being carried out to better understand unbounded risks and how it affects resilience of port systems in the UK. As part of this project, a methodology is being developed to assess and improve resilience of port system.

In this seminar, the proposed method with Port of London as case study will be presented. The method includes identifying critical stakeholders and modelling interdependencies between them, which will help predict the impacts to port resources and facilities during a particular disaster scenario. In addition, to assess system wide impacts of a disaster scenario, a port operations simulation model representing service functions of stakeholders being developed will be detailed. It is a Discrete Event Simulation (DES) model implemented in AnyLogic and will focus on the sea-side operations of the port. The seminar will also discuss the use of them in bringing the stakeholders of the port together to better understand system wide risks and resilience. It is anticipated that the use of simulation model for this purpose and the overall methodology will enable port stakeholders to more accurately evaluate their risk management procedures and practice and thereby help to optimise the allocation of resources.

Fiona Collard: Presenting Complex Information for Decision Making

We are frequently required to distil complex data from our research into easy to understand presentations for the academic community, fund holders and the public. Whether we aim to persuade or appear objective, recommendations exist to guide textual, numerical and visual formats. This is
particular important if we wish to avoid misleading the viewer or we require them to make a decision based on our information.

This study, motivated by the need to present complex, personalised, survival information to breast cancer patients and their clinical team, compared the effect of graphical formats on information retrieval and decision making. The surprising findings are relevant to anyone who has to present data in a graphical format.

30/10/2012, 12-2pm, Room C01

**Ian Dent: Exploring variability of regular behaviour within households using meter data**

The talk will describe on-going work to use clustering techniques to find households which demonstrate irregular behaviour and who might be receptive to behaviour modification initiatives. Using only the output from electricity meter sampled at a frequency of minutes, regular, interesting activities are determined within a household. How the times of these activities change from day to day is used to generate various measures of “flexibility” and this information to then used to cluster the households into a few, useful, actionable clusters. The talk will explain the motivation for the work, the concept of flexibility and the approach being taken to identify good measures of flexibility which can usefully be used to create a few clusters. Data used is from the on-going North East Scotland Energy Monitoring Project (NESEMP) which is examining the relationship between different types of energy feedback and psycho-social measures including individual environmental attitudes, household characteristics, and everyday behaviours. As part of this project, 380 households were monitored with the electricity usage recorded every five minutes creating a database of approx. 36 million readings. Initial, simple results based on this data will be presented.

**Patrick Muratori: ACOPI: A test bed for affective computing**

One goal of Affective Computing (AC) is to design a computer system that responds to real-time changes in user affect (e.g., happiness, sadness, etc), as represented by speech, facial expressions, and physiological signals. This is a 1 year project aiming to investigate ways of accurately gathering physiological data such as ECG, Galvanic Skin Response (sweat), and face recognition and aggregating these data sources to try and determine the emotion being experienced by participants whilst using computers. It is designed to investigate and explore the significant potential of AC for applications in areas benefiting from deeper insight into the user experience (such as game design, online shopping portal refinement, etc.) beyond traditional methods such as interviews and questionnaires. The project is focusing on the exploration of AC and its challenges to meet real world user needs and has established links with commercial partners such as Failbetter Games and Noldus to maintain a close connection between the research and user/real world requirements.

06/11/2012, 12-2pm, Room C01

**Shabbar Navqi: Towards development of a Fuzzy Inferencing System for the automation of breast cancer grading with spectral data sets**

Breast cancer is one of the most common causes of cancer deaths among women throughout the world. Once the disease has been diagnosed, monitoring its progress with time is very important, this is called Prognosis. Prognosis helps when predicting the probability of long term survival of patients, as well as making decisions regarding medication or surgery for improving a patient’s chance of survival. Grade is one of the most important prognostic factors and is currently determined by means of visual inspection of cancer samples under a microscope by pathologists. This method introduces the possibility of human error, as well as disagreement between experts. In this seminar, I shall talk about use of Fourier Transform Infrared Spectroscopy (FTIR) as a relatively new technique in combination with Fuzzy Inferencing System (FIS) in order to develop a novel frame work for the automation of breast cancer grading.
Aslam Ahmed: A Study of Variance in System Dynamics and Agent Based Modelling Using the Bass Diffusion Model

The real world is full of uncertainty. Depending on the type of application, computer simulations can incorporate this internally, as part of their inner working (as per Agent Based Simulations) or generalise it (as per simulations using System Dynamics). System Dynamics produces a single result based on a fixed set of input parameters with no variance between simulations. Agent Based simulations are able to produce different output results on each run, based on knowledge of the local interactions of the underlying agents and without making any changes to the input parameters. In this study, an Agent Based model and a System Dynamics model is generated for Bass Diffusion to determine the range of the output results for the different parameters. Variation in the output of computer simulations can be used to help make more informed decisions about real world processes and help to understand the cause and effect of the uncertainty that is inherent within them.

13/11/2012, 12-2pm, Room C01

Peer-Olaf Siebers: Multi Criteria Decision Analysis - A Primer

Multi Criteria Decision Analysis (MCDA) is a relatively new research method concerned with structuring and solving decision and planning problems involving multiple criteria (Wikipedia 2012). The big advantage compared to the more established Cost Benefit Analysis (CBA) is that MCDA allows taking monetary and non-monetary values into account while for CBA all values have to be translated into monetary values. This is particularly difficult when analysing service systems where many measures are of subjective nature and therefore difficult to translate. The first part of this tutorial is a step-by-step introduction to MCDA. As usual this will be a hands-on tutorial - so do not forget to bring pen and paper :). In the second part I will present a case study showing how simulation and MCDA can be used together to provide even better decision support.

20/11/2012, 12-2pm, Room C01

Daphne Lai: Improving breast cancer classification using feature selection and semi-supervised Fuzzy c-means

Feature selection has been widely studied and applied in data mining. In this work, we present a methodology of using feature selection with semi-supervised fuzzy c-means to improve the classification of the Nottingham Tenovus Breast Cancer data. While feature selection is known to improve classification, to the best of our knowledge, it has not been applied with semi-supervised fuzzy c-means. We show the experimental results using four different feature selection techniques, exploring the use of 10, 15 and 17 selected features out of the original 25. As we are using a semi-supervised technique, we experimented with varying amounts of labelled data; 10%, 20%, 30%, 40%, 50% and 60% of the training data. The experiments are evaluated using a 10-fold cross validation technique. Our results show better classification accuracy using a specific number of features than without feature selection. The wrapper technique Naive Bayes-Recursive Feature Elimination produced the best classification for the dataset in comparison with the other techniques, despite that wrapper-based techniques are prone to overfitting. This technique has used resampling to tackle this problem. We also address the issue of stability in classification accuracy.

Stephanie Lax: Improving Flow Cytometry Data Analysis

Flow cytometry is a powerful technique used within cancer, autoimmunity and aging studies. Our aim is to improve the accuracy of analysis of flow cytometry data used to enumerate T regulatory cells. Specialist software is available to allow the laboratory researcher to manually define two dimensional 'gates' or filters to sequentially isolate specific areas of the resultant multidimensional data. However, this is time consuming, insensitive, poorly reproducible and entirely subjective.

Elementary clustering using both k-means and fuzzy c-means are capable of producing a distinct “Treg-like” cluster. The likelihood of achieving a successful outcome is increased by increasing the
number of clusters or by excluding the CD127 biomarker. Using these algorithms optimally across our sample population of donors of different ages has enabled us to show that T regulatory cells decrease in frequency in peripheral blood throughout life.

This work will be extended by evaluating novel algorithms such as FLAME, SamSPECTRAL and flowMerge.

27/11/2012, 12-2pm, Room C01

**Jie Shu: Immunostained image analysis**

Immunohistochemistry (IHC) is one of the common techniques used to detect protein expression in various tissue samples. Current evaluation of IHC image is performed by experienced pathologists visually, which is called the qualitative evaluation. However, quantitative evaluation by analyzing pixels that represents the IHC labeling in an objective way can be more sensitive and reproducible than visual grading. Computational quantitative method, instead of manually counting, offers the potential to reduce time consuming and laborious process in the evaluation process. A validated semi-automated tool has been developed to quantify immunostained receptors in colon tissue sections. The methodologies used in this tool provide an objective description of the biomarker expression among sets of tissues. These methods have been tested on a set of manually labeled Tissue Microarray (TMA) and Whole Slide Images (WSI) colorectal cancers stained for the biomarker P53. Experimental results show that they outperformed currently available methods in both positive color detection and nuclei segmentation.

29/01/2013, 1-3pm, Room C01

**Jon Garibaldi: A Summary of IMA Activity**

In this seminar Jon will give an overview of projects currently underway within IMA.

05/02/2013, 1-3pm, Room C01

**Josie McCulloch: Extending Similarity Measures of Interval Type-2 Fuzzy Sets to General Type-2 Fuzzy Sets**

Similarity measures provide one of the core tools that enable reasoning about fuzzy sets. While many types of similarity measures exist for type-1 and interval type-2 fuzzy sets, there are very few similarity measures that enable the comparison of general type-2 fuzzy sets. I have been researching into a general method for extending existing interval type-2 similarity measures to similarity measures for general type-2 fuzzy sets. Specifically, how similarity measures for interval type-2 fuzzy sets can be employed in conjunction with the zSlices based general type-2 representation for fuzzy sets to provide measures of similarity which preserve all the common properties (i.e. reflexivity, symmetry, transitivity and overlapping) of the original interval type-2 similarity measure. I have demonstrated examples of such extended fuzzy measures and provide comparisons between (different types of) interval and general type-2 fuzzy measures.

**Diman Hassan: Using Data Mining Techniques to Detect ADRs in THIN database**

It is undoubtedly true that medicines have a big role in the health improvement and increase the opportunity for every life to survive under various conditions, however it is equally true that every drug has side effects under certain conditions. The power of the post marketing surveillance to detect adverse drug reactions (ADRs) is limited due to the clinical trials that are both limited in terms of the number of patients especially in the paediatric population as well as being limited in terms of timeframe available over which to detect adverse effects in a population. As The Health Improvement Network (THIN) database contains a multidimensional and very large numbers of variables and hierarchical attributes such as Read Codes, clustering hierarchal medical events is one of the important issues that have been taken into account. We will start to address this issue by representing the medical
events (Read Codes) as trees and measuring the similarity between these trees using pq-grams distance measure, then normalise the distances and cluster them using a suitable clustering algorithm to produce the medical events that are potentially ADRs.

**Ohud Almutairi: An Introduction**

Ohud’s background and her research interest which is in modelling and simulation, particularly Agent-based modelling and simulation (ABM&S) and how to employ it to help to improve online store. Online virtual assistant on online store become as an important element on online store and conducting online shopping process without virtual online salesperson assistance seems more difficult when customer need any instant help and response for its enquiries. However, Most of online virtual assistants that have been developed seem not to keep the promises that designed for. Therefore this would increase the important of training an online virtual assistant (or Avatar) to ensure it works just like what is designed for and meets the customers’ needs. So is it possible to train an artificial assistant by artificial customers on a simulated Environment? We need first to answer this question by developing a tool that could be used to train an avatar to ensure that it meets what it is designed for.

**Polla Fattah: Who am I?**

In this presentation I will try to introduce myself to the group in an unofficial way as good as I can!

**Tuong Vu: Comparing Different Approaches in Agent-Based Modelling and Simulation**

There is an ongoing debate on how to best represent human behaviour when studying policy interventions. People argue for example if differences in populations are best represented by archetyping or by using ideas from fuzzy logic, or if knowledge representation should be empirical or theoretical based. I will critically investigate the different options through a literature review and interviews with experts and build some agent-based simulation models to test the findings from the review.

**Jacob Chapman: Multi-Agent Stochastic Simulation of Occupants Comfort and Behaviour**

Building performance simulation is commonly used in building construction and architecture to understand the buildings performance on thermal sensations and energy efficiency. Current methods use a deterministic representation of occupants that fails to address the stochastic nature of occupants with buildings. Occupancy schedules are used and are specified before simulation is started and meaning occupant reactions to the environment and the effects that result from these actions are not account for. To overcome these limitations we hypothesis that a coherent basis for rigorous prediction of a building’s performance is the multi agent stochastic simulation of people’s presence, comfort and behaviour within a building simulation environment.

**Jethro Shell: Learning From Experience: Fuzzy Transfer Learning**

The world that surrounds us is complex, consisting of many unknowns. To interpret this world, humans have learnt to use previously acquired information to reason and understand their surroundings. Knowledge from different but related domains can be used to aid the ability to learn. For example, riding a tricycle as a child can help in learning to ride a bicycle when older. This humanistic approach to learning can be used to tackle difficult real-world problems where a priori labelled training data is either difficult or not possible to gain. The transferral of knowledge from a related, but differing context can, however, allow for the reuse and repurpose of known information.

This talk introduces Fuzzy Transfer Learning, a composition of two methods, broadly based on a humanist approach to learning. Fuzzy Transfer Learning is a framework that allows information gained in different contextual situations to assist new learning tasks while capturing imprecision and uncertainty that may be present within the context. This research has focussed on the problem of
learning tasks that have no prior direct contextual knowledge. Work within the dynamic applications of Intelligent Environments (IEs) and eye-gaze tracking will be presented.

Stephen Matthews: Learning Lost Temporal Fuzzy Association Rules

Fuzzy association rule mining discovers frequent patterns in transactions, such as items purchased together in a supermarket, or Web pages visited on a Web site. Temporal patterns can be present in fuzzy association rules because the underlying process generating the data can be dynamic. However, existing rule-finding solutions may not discover all interesting patterns because of a previously unrecognised problem that causes some rules to be lost. The talk will explain how rules can be lost and a solution to the problem.

The Genetic Iterative Temporal Fuzzy Association Rule Mining (GITFARM) framework solves the problem by utilising flexible fuzzy representations from a fuzzy rule-based system. A choice of model in fuzzy representation provides a trade-off in usage between an approximate and descriptive model. The framework transforms the dataset to a graph for efficiently searching the dataset. GITFARM uses a genetic algorithm to search for temporal fuzzy association rules. A comparison of GITFARM and a traditional approach has shown how GITFARM can discover lost rules that the traditional method does not.

19/02/2013, 1-3pm, Room C01

Alexandros Ladas: Potential of Psychological Information to inform Credit Scoring

Following the recent findings in literature that encourage the incorporation of psychological factors into traditional economic models, we examine the possibility of using Psychological Information to improve the accuracy of the existing Credit Scoring models. In more detail, our goal is to research how to extract Psychological Information from alternative sources in order to build Personality Profiles of consumers and how we can utilize these Profiles to achieve a more accurate Credit Score. In this Seminar we will present our methods to extract Personality Profiles using cluster analysis on a database collected from the Consumer Credit Counselling Service in UK and contains socio economic variables of debtors.

Rodrigo Scarpel: Psychological factors on retail credit risk assessment

Due to the outstanding growth of consumer credit and the increased regulatory attention to risk management, the development of a well-functioning credit assessment framework, as well as the usage of risk assessment tools are essential. In this seminar, different approaches to dependency modelling, households clustering and level of debt prediction will be presented. All analysis was performed using a database collected by a Consumer Credit Counselling Service (CCCS) in the UK. On dependency modelling, the KDD process was applied to describe the structural relationships among the available socioeconomic and financial variables. For the households clustering, partitioning methods were applied to build profiles concerning consumer over-indebtedness and for the level of debt prediction, an approach that integrates both the households clustering and the model fitting is being evaluated.

26/02/2013, 12-2pm, Room C01

Julie Greensmith: Effective Academic Posters: A Mini-Workshop

Many of us get invited to present our work via the medium of a poster presentation at a conference or research symposium. Experience has shown that a little power point knowledge can be dangerous, with poor design rendering some attempts useless. Over use of text and lack of narrative plague poster presentations. In this mini workshop we will cover designing effective poster layouts, using colour appropriately, images and graphics and poster narrative. As part of this workshop will be interactive, I aim to give participants hands on experience of poster design, covering both professionally printed and cheap n quick LoFi approaches. In this seminar I will go over common design sins for print media, and cover the basic steps necessary to produce a great research poster for any occasion.

Designing secure software systems is a non-trivial task as data on uncommon attacks is limited, costs are difficult to estimate, and technology and tools are continually changing. Consequently, a great deal of expertise is required to assess the security risks posed to a proposed system in its design stage. In this research we demonstrate how Evolutionary Algorithms (EAs) and Simulated Annealing (SA) can be used with Ordered Weighted Average (OWA) operators to provide a suitable aggregation tool for combining experts’ opinions of individual components of an specific technical attack to produce an overall rating that can be used to rank attacks in order of salience.

Orod Razeghi: Understanding Visual Content with Human in the Loop

For many years researchers around the world have tried exceptionally hard to propose practical solutions to the problem of understanding visual content of an image. Despite all the efforts, the simplest of visual tasks to us humans remain a significant challenge for computers. In a few cases, where the computer processing power is reliable enough to accomplish the task, the issue of the public distrust in capability of machines to solve their critical problems remains untackled.

The purpose of this project is to combine the latest visual pattern recognition and machine learning techniques with high level knowledge of human beings. The abstract knowledge of humans will improve accuracy of computer algorithms. At the same time, computer algorithms will reduce human labour by filtering results and doing mundane tasks. The proposed model is planned to be tested with medical applications in mind. The examples of such applications would be dermatology datasets with skin disease recognition tools.

Robert Miles: Applying Immune Inspired Computing Methods to a problem in Affective Computing: Identifying the Causes of Website User Frustration

Immune-Inspired Computing (IIC, also known as Artificial Immune Systems) is a branch of Biologically-Inspired Computing concerned with developing and studying computational systems inspired by the functioning of the human immune system. Immune-inspired methods have proven themselves in areas such as computer security, anomaly detection, and robotics.

Affective Computing is a field concerned with developing and studying computational systems that are intended to recognize, interpret, process, or simulate human moods and emotions (affect). The methods of Immune-Inspired Computing have never been applied to problems in Affective Computing, and we believe that they are potentially valuable tools for certain affective problems.

In particular we are exploring the use of the Dendritic Cell Algorithm (DCA) for the problem of psycho-physiological software user experience evaluation. Towards this, we are conducting an experiment to measure frustration in website users, through facial electromyography.

Qian Zhang: Partition voting min-hash for partial duplicate image discovery

Discovering partially duplicated images such as those of the same scenes, buildings or objects taken from different angles, distances and vantage points can be very useful in applications such as managing large image repositories and image search on the Internet. In this research we demonstrate how to efficiently discover these partial duplicate images in large image data set with our proposed novel technique termed as tree partition voting min-hash (TmH).
Christian Wagner: Fuzzy Sets and Systems in the Wild

Fuzzy sets and systems are used in a large number of applications from financial forecasting and control to more novel areas of application such as CW (Computing with Words).

One of the recurring stumbling blocks however, in particular for researchers outside the fuzzy logic area, is the actual implementation of fuzzy systems and/or access to existing tools that facilitate the development. This seminar will introduce a recently released open source Java based software toolkit which enables the rapid development of fuzzy logic systems (FLSS), in particular a straightforward transition between traditional type-1 FLSs and the more complex interval and general type-2 FLSs. The brief introduction of the toolkit will be followed by an overview of some of the current projects employing fuzzy sets and systems in IMA, specifically centred around CW.

At the end of the seminar, a student project on "porting fuzzy systems onto a cloud-based architecture" will be briefly introduced by 3rd year student Zhenyi Wang and attendees will be invited to provide feedback on its usability and user interface.

Bozhi Liu: Colour Constancy

Colour constancy is usually taken as the effect whereby the perceived or apparent colour of a surface remains constant despite changes in the intensity and spectral composition of the illumination. As the limit and different framework of digital cameras, keep colour display constantly under different illuminates is a challenge work. Researchers have developed some theories to recover the colour of objects from under other illuminants to white light, as the colour under white light is presumed as the original colour of object. This function has built in digital cameras as named white balance, and received good results. This topic will focus on why and how colour constancy is physically possible, how to achieve this goal by digital cameras, and several different colour constancy algorithms.

Mercedes Torres: Habitat Classification using Ground-taken Photographs

Habitat classification is important for monitoring the environment and biodiversity. Currently, this is done manually by human surveyors, a laborious, expensive and subjective process. My research aims to develop a new computer habitat classification method based on automatically tagging geo-referenced ground photographs. In order to do that, we have collected a geo-referenced habitat image database containing over 1000 high-resolution ground photographs that have been manually annotated by experts based on a hierarchical habitat classification scheme widely used by ecologists. We approach photograph-based habitat classification as an automatic image tagging problem and we have developed a random-forest based method for annotating an image with the habitat categories it contains. We have also developed an efficient and fast random-projection based technique for constructing the random forest. Results show that ground-taken photographs are a potential source of information that can be exploited in automatic habitat classification and that our approach is able to classify with a reasonable degree of confidence four of the main habitat classes: Woodland and Scrub, Grassland and Marsh, Heathland and Miscellaneous.

Tao Zhang: Simulating the Effects of the Government’s Green Deal Initiative in the Energy Market

About a quarter of the UK carbon emission comes from the energy consumed in the residential sector. In order to reduce the emission the UK government has proposed a Green Deal Initiative, which, according to DECC, is an innovative financial mechanism enabling private companies to offer energy consumers energy efficiency improvements to their homes at no upfront cost, and recoup payments through a charge in instalments on the energy bill. The scheme, due to be launch in Oct 2012, is
expected to result in the renovation of the UK’s housing stock with several million homes seeing energy efficiency improvements.

Whilst many people, from an economics point of view, believe that the scheme will benefit both energy consumers and business, there are some obvious uncertain and complex issues around the scheme. For example, there is a fear that the scheme will increase fuel poverty in the UK; the building industry is concerned about the lack of incentives to drive the uptake of the scheme; there will be problems when the occupants of a home move, as the scheme is attached to the property rather than the occupants.

The developments of complexity science approaches (especially ABS) offer us a robust tool to explore these complex economics, policy and social issues associated with the Green Deal Scheme. The paper describes an agent-based model to study the effects of the government’s Green Deal initiative. In the model, the energy consumers are modelled as intelligent agents. They decide whether to uptake the Green Deal Scheme based on a set of social-economic rules. Their interactions can influence these social-economic rules. Homes are modelled as objects attached to the energy consumers. Once an energy consumer agent moves, it passes its home object to the one who takes the object. The model aims to explore the best practice to maximise the benefits of the Green Deal scheme. It presents a nice example of an interface between complexity science and the real world.

21/05/2013, 1-3pm, Room C01

Min Zhang: ‘A is for Art’ – My Drawings, Your Paintings

The booming development of digital technologies has significant effects on our modern life, it changes the way humans seeing and feeling this world. The digitalisation of artworks raises a set of interesting topics with the aim of making the art accessible to anyone with an Internet connection. In this talk, I will briefly introduce the motivation of my PhD research and the current work:

- An Android Mobile App ‘A is for Art’ was developed to help the general public to find paintings using free-hand drawings, with the aim of involving more people with Visual Art, particularly the paintings from the Tate Collection, in an interesting way.

- A focus group for usability evaluation was conducted, and design principles were drawn from both the development and the evaluation phases.

28/05/2013, 1-3pm, Room C01

Jabran Aladi: TBA

TBA

Daniel Soria: The Advanced Data Analysis Centre (ADAC).

During my talk, I will present the recently established Advanced Data Analysis Centre (ADAC), a joint initiative between the School of Computer Science and the School of Veterinary Medicine and Sciences within the University of Nottingham. ADAC is funded to support research by the analysis and interpretation of difficult data; analysts can provide help with the development of a research strategy, grant writing, and visualisation of complex data. I will highlight ADAC’s specific objectives and areas of expertise before presenting a couple of projects I’m working on, which are examples of how ADAC can help to make an impact on interdisciplinary research.