Data Mining in Social Science:
An Introduction to Concepts and Practices

A four day workshop for early career researchers
27-30 November 2017, Australian National University, Canberra

The ARC Centre of Excellence in Population Ageing Research (CEPAR) is proud to offer this four day workshop for early career researchers hosted by the Centre for Research in Ageing, Health and Wellbeing at the Australian National University.

Description

Recent methodological advances in data acquisition and analysis have expanded the possibility to explore, interpret, and make sense of our ever-growing behavioral and social data streams. Data science has emerged as a major area of statistical research and is increasingly employed by social scientists. In this 4-day workshop we introduce foundational concepts and practices that support "data mining" and researchers' ability to engage, apply, and interpret results from exploratory analyses. We will introduce the conceptual bases and strategies employed in exploratory data mining and review a variety of analysis techniques and algorithms for unsupervised and supervised learning, use of training and test data, feature selection, and pattern recognition. Throughout the workshop, we will utilize various packages available through R, an open source statistical program.

Course materials include basic readings on the fundamental issues in exploratory data analysis, lecture notes and R scripts for conducting analyses. The workshop alternates between lectures on the theory and applications of various techniques, and lab sections, which review the specification of the models using R. Participants are strongly encouraged to bring a notebook computer equipped with R.

Prerequisites

There are no specific prerequisites for this course. Generally, the material is targeted towards scholars interested in how data science can contribute to their interests and pursuits. A substantial level of expertise in statistics and data analytical procedures (e.g., multiple regression analysis) and interest in and access to an on-going research project with multivariate data is a plus.

Format

As much as possible, a seminar atmosphere will be maintained in the scheduled sessions. Most days, half the time will be spent in a lecture/discussion, and half will be spent in the computer lab working through examples and/or analysing one's own data. Participants are encouraged to bring research issues and data pertinent to their own interests for discussion and critique.

Workshop Schedule

The full workshop schedule and further information will be published closer to the date.

Travel Bursaries

A number of travel bursaries valued at up to $750 will be offered to assist interstate participants with travel and accommodation expenses.

Applications

A limited number of places are available. Applications must be made on the prescribed <u>APPLICATION FORM</u> and submitted by 11 September 2017.

Selection

Selection will be based on the potential benefit to the applicant's research development. PhD students are eligible to apply but preference may be given to Early Career Researchers (researchers who have completed a PhD in the last 5 years).

Cost

There is no charge for the workshop. The workshop is supported by funding provided to CEPAR by the Australian Research Council to support the training of Early Career Researchers.

Key Dates

28 July	Applications open
11 September	Applications close
12 October	Applicants notified of outcomes
27 – 30 November	Workshop

Enquiries

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Accommodation Options

Liversidge Court Apartments	https://services.anu.edu.au/campus-environment/short-stays/brian-lewis-court-liversidge-court
University House	http://unihouse.anu.edu.au/
Rydges Capitol Hill	https://www.rydges.com/accommodation/canberra-act/capital-hill-canberra/
Novotel Canberra	http://www.accorhotels.com/gb/hotel-2796-novotel-canberra/index.shtml
Peppers Gallery	http://www.peppers.com.au/gallery/rooms-and-suites/

Workshop Presenter

Nilam Ram

Professor, Human Development & Family Studies, and Psychology, The Pennsylvania State University

Nilam's current research interests have grown out of a history of studying change. After completing his undergraduate study of economics he was lucky enough to land a job as a currency trader. There he studied the movement of world markets as they jerked up, down and sideways. Later he moved on to the study of human movement, kinesiology, and eventually psychological processes - with a specialization in longitudinal research methodology. Generally, Nilam studies how short-term changes (e.g., processes such as learning, information processing, etc.) develop over the course of the life span and how intraindividual change and variability study designs (e.g., measurement bursts) might contribute to our knowledge base. Current projects include examinations of: age-related change in children's self-regulation; cyclic patterns in the day-to-day progression of adolescents' and adults' emotions; and change in cognition and well-being during old age. Methodologically, he is also working to develop a variety of multi-person extensions of intraindividual analytic methods and investigating how recent developments in data science can be applied to fast-arriving, intensively dense data streams arriving from social media, mobile sensors, and smartphones.