



Medicine, Nursing and Health Sciences

Neuroethics Down-Under 2014

Neuroscience and Society in the 21st Century

10-11 December 2014

Melbourne Convention and Exhibition Centre
1 Convention Centre Place,
South Wharf VIC 3006



Welcome

Dear Colleagues and Friends

It is our great pleasure to welcome you to *Neuroethics Down Under 2014: Neuroscience and society in the 21st century*, the second in a series of meetings exploring the impact of neuroscience research on Australian society.

Advances in neuroscience are transforming our understanding of human cognition and behaviour, changing how we treat people with behavioural or psychiatric disorders, and challenging society's views of moral responsibility. We need to carefully consider how we employ the benefits and insights of neuroscience to build a healthier, happier and more equitable society.

This symposium brings together leading academics and professionals from across Australia. It is a unique opportunity for neuroscientists, legal and healthcare practitioners, policy makers, ethicists, philosophers, and other stakeholders to examine how neuroscience should change current practices.

Neuroethics Down Under 2014: Neuroscience and society in the 21st century is an initiative of Monash University, the ARC Centre of Excellence for Integrative Brain Function and its knowledge-sharing program The Brain Dialogue, and Neuroethics Australia, in partnership with Club Melbourne and ABC Radio National.

We are very proud to be your hosts for this important event and hope that you enjoy Neuroethics Down Under 2014.

Yours sincerely



Dr Adrian Carter



Professor Gary Egan

Dr Adrian Carter and Professor Gary Egan (Director, ARC Centre of Excellence for Integrative Brain Function and Club Melbourne Ambassador)

(On behalf of the Organising Committee)

Organising Committee:

Dr Adrian Carter (Monash University)

Dr Cynthia Forlini (University of Queensland)

Professor Murat Yucel (Monash University)

Professor Wayne Hall (University of Queensland)

Professor Jeanette Kennett (Macquarie University)

Conference Program

Wednesday 10 December

6.00 - 8.00	Public Lecture (6.00pm for 6.30pm start) Professor Julian Savulescu <i>"Manipulating morality: Using pills, drugs and brain stimulation to solve social challenges in the 21st century"</i> Hosted by and in conversation with Scott Stephens (ABC Online, Religion and Ethics Editor) and broadcast on ABC RN <i>Big Ideas</i> .
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Thursday 11 December

8.00	Registration Open (Tea and coffee available)
8.45 - 9.00	Welcome and Open Adrian Carter (Welcome) Gary Egan (Opening)
9.00 - 10.30	Session 1: Decision-making and the Brain Murat Yucel (Monash University) – A neuroscience perspective on decision-making and self-control Antonio Verdejo-Garcia (Monash University) – Cognitive self-awareness in stimulant addiction Carsten Murawski (University of Melbourne) – From decision neuroscience to public policy
10.30 - 10.45	Morning Tea
10.45 - 12.15	Session 2: Intervening in the Brain Paul Fitzgerald (Monash Alfred Psychiatry Research Centre) – The clinical and ethical impact of the expanding use of non-invasive brain stimulation Fred Gilbert (University of Tasmania) – Deep Brain Stimulation and postoperative feelings of self-estrangement Brad Partridge (University of Queensland) – Ethical issues in the use of computerized neuropsychological tests for concussion management in sport Wayne Hall (University of Queensland) – What do the neuroscience and genetics of nicotine dependence have to contribute to the future of tobacco control in Australia?
12.15 - 1.15	Lunch
1.15 - 2.00	Session 3: Keynote Nick Haslam (University of Melbourne) – Misery in the brain: The mixed blessings of neuroscientific understandings of mental illness
2.00 - 3.30	Session 4: Neuroscience and the Law Jeanette Kennett and Allan McCay (Macquarie University) – Neuroscience in the courtroom: From theory to practice Chris Ryan (Consultant Psychiatrist; Values Ethics and Law in Medicine, UNSW) – How are we to assess the ability to use and weigh information? Sascha Callaghan (Values Ethics and Law in Medicine, UNSW) – “Scientism” and legal agency: Is neuroscience harming people with disabilities?
3.30 - 3.45	Afternoon Tea
3.45 - 5.15	Session 5: Neuroscience and the Self Adrian Carter (Monash University) – Authenticity and agency in drug-induced compulsive behaviour Cynthia Forlini (University of Queensland) – Is there a moral responsibility to delay cognitive ageing and what does it entail? Cordelia Fine (University of Melbourne) – The myth of the Lehman Sisters? Sex, testosterone and financial risk-taking
5.15 - 5.30	Closing Remarks – Future Directions Adrian Carter

Abstracts

Wednesday, 10 December

Manipulating morality: Using pills, drugs and brain stimulation to solve social challenges in the 21st century

Julian Savulescu

The greatest problems of the 21st century—climate change, environmental degradation, terrorism, poverty, global inequality, mass migration, depletion of resources, infectious diseases, abuse and neglect of children—are predominantly the result of human choice and behaviour. The greatest problems humanity now face are not the result of external threat, but are the result of human choice. They are caused by human moral limitations. Human moral psychology has been shaped by its evolutionary history. It is characterized by aggression, restricted altruism, partiality to kin and in-group members, hostility and disregard of out-group members, bias towards the near future and limited co-operation including free riding. These dispositions have generated common sense moralities which are characterized by strong prohibitions against harming in-group members, few requirements for beneficence or aiding, especially out-group members, a causal sense of responsibility which places greater weight on the consequences of acts in the near future, affecting in-group members, with little consideration given to the foreseeable consequences of omissions. These dispositions and articulated moral norms expose humanity to unprecedented threats in the modern world of advanced technology and global community. Liberal democracy increases the threat our limited moral dispositions pose to our survival and flourishing. I will focus on terrorism, global poverty and climate change. I argue that we should not rest content with our current strategies for addressing these problems. I argue that we should look to not only policies tailored to our moral limitations, but to altering the biological dispositions that contribute to these limitations. I sketch briefly how this might be possible. I argue that research into human moral bioenhancement is an urgent priority.

Thursday, 11 December

Session 1: Decision-making and the Brain

A neuroscience perspective on decision-making and self-control

Murat Yucel

Exercising self-control comprises a range of processes including being able to delay gratification, control impulses, and modulate emotional expression so as to minimize risk and maximize gain. Differences between individuals in self-control can be detected early in life and have been found to predict many aspects of an individual's health, wealth, and safety in later adulthood. Furthermore, too little or too much self-control can also lead to psychopathology. For instance, self-control is typically reduced in addictions (e.g., gambling, binge eating, substance abuse) and exaggerated in obsessive-compulsive disorder. Such behaviours are very common in the general community, existing on a continuum ranging from mild "habits" to severely debilitating symptoms characterised by impulsive-compulsive behaviour (i.e., failures of self-control). As such, the study and understanding of self-control has great implications for not only individuals, but also for society and policy-makers. Here I will overview some of the recent insights from neuroscience concerning the core aspects of decision-making and self-control.

Cognitive self-awareness in stimulant addiction

Antonio Verdejo-Garcia

Stimulant addiction is theoretically associated with impaired self-awareness of the neurobehavioral deficits caused by drug use. This impairment is of paramount clinical significance as evidence from brain damaged populations indicates that reduced self-awareness is a major hurdle for recovery. However, there are few methods sensitive to self-awareness impairment in addiction, and hence little evidence about its manifestations, its neural underpinnings or its clinical implications. Here I will present evidence of reduced self-awareness of neurobehavioral symptoms in patients with cocaine addiction using the validated method of comparing patients' ratings to those of significant others who know them. Moreover, I will present evidence of the link between reduced self-awareness and the volumes of frontostriatal brain regions. Interestingly, poor self-awareness is associated with neuroadaptations in underlying neurocircuitry involving dorsal striatum and insula, which are involved in habitual behaviour. I will discuss the neuroethical implications of these findings for the addiction concept and the pathways to recovery.

From decision neuroscience to public policy

Carsten Murawski

Research on the neural basis of decision-making (decision neuroscience/neuro-economics) has advanced dramatically over the past ten years, linking aspects of behaviour to functional and anatomical properties of the brain. Increasingly, policy makers are interested in the relevance of this research for public policy decisions. In this talk, I will use the public policy issue of problem gambling to illustrate both potential and pitfalls in the translation of fundamental research in decision neuroscience to public policy.

Session 2: Intervening in the Brain

The clinical and ethical impact of the expanding use of non-invasive brain stimulation

Paul Fitzgerald

We now have a number of non-invasive tools that can be used to alter brain activity in living human subjects, either who have or don't have neuropsychiatric illness. Transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) can be used to produce transient or more persistent alterations in brain activity: in both local regions of the brain and in distributed brain networks. These tools, especially TMS, are now increasingly being utilised in the treatment of a number of psychiatric disorders, especially depression. There is also considerable interest in the use of these tools to enhance cognitive abilities. The enhancement of cognition has considerable attraction in the treatment of disorders such as Alzheimer's disease, traumatic brain injury and schizophrenia and research continues to explore this realm. However, there is also potential capacity for improvements in cognition produced with non-invasive brain stimulation to be utilised by healthy individuals to enhance performance in everyday life. Like the use of cognitive enhancing drugs, this raises considerable questions about the appropriate environment in which this might be done as well as questions about long-term safety.

Deep brain stimulation and postoperative feelings of self-estrangement

Frederic Gilbert

One of the most salient ethical concerns regarding Deep Brain Stimulation (DBS) is the fear that the surgery or implants will negatively change a patient's sense of identity or "self", in particular with respect of being psychologically worse-off following treatment despite postoperative disability improvements. A significant proportion of publications report cases of successfully 'treated' Parkinson's patients who have had DBS who experience difficulty adjusting to a new concept of themselves, or cases of DBS patients with clear motor improvement who report a feeling of strangeness about their postoperative self. Surprisingly, little attention has been paid in the literature to the idea that successfully 'treated' individuals might experience self-adjustment difficulties of becoming 'normal'; a phenomenon known as the Burden of Normality. This presentation will explore the notion of postoperative self-estrangement in relation with DBS.

Ethical issues in the use of computerized neuropsychological tests for concussion management in sport

Brad Partridge

Since 2001 computerized neuropsychological (CNP) tests have become an increasingly common tool in sports concussion management. Under this paradigm, athletes sit pre-concussion baseline tests of neuropsychological and cognitive functioning, which are then compared to "post-concussion" results in the hope of determining when their symptoms have resolved. International concussion guidelines have advocated their use in helping to determine when it safe for a concussed athlete to return to play. A number of professional sporting leagues mandate them, and many high schools also require student. However, there are a number of ethical issues bearing upon their advocacy and marketing, particularly conflicts of interest. Much of the published evidence for the validity, reliability and utility of CNP tests is linked to companies that own and market these tools. Publications co-authored by employees, owners and consultants to these companies have had a major influence on global protocols for concussion management in sport. Furthermore, there are concerns that the marketing claims made by some companies outstrip the evidence for their use. This presentation will discuss some examples and explore whether there is a need for better regulation of CNP tests for concussion.

What do the neuroscience and genetics of nicotine dependence have to contribute to the future of Tobacco Control in Australia?

Wayne Hall

In Australia in 2010 around 17% of adults still smoked cigarettes. In this paper I consider the potential utility and ethical issues raised by strategies derived from genetic and neuroscience research on smoking for getting the prevalence of smoking prevalence under 10% by 2020 (a target set by the Australian government). These strategies include: improving smoking cessation by screening smokers for polymorphisms that predict responses to pharmacological treatments; vaccinating smokers against the effects of nicotine; attempting to prevent nicotine dependence by screening the population for genetic susceptibility to nicotine dependence and vaccinating non-smoking children against the effects of nicotine. The ethics and utility of these approaches are contrasted with those of the low technology approach of nicotine harm reduction: encouraging smokers who are unable or unwilling to quit to switch to using non-smoked forms of tobacco such as pharmaceutical nicotine, low nitrosamine oral tobacco products and e-cigarettes.

Session 3: Keynote

Misery in the brain: The mixed blessings of neuroscientific understandings of mental illness

Nick Haslam

Neuroscientific understandings of mental illness are on the rise but their implications for how we view mentally ill people are ambiguous. Although advocates have argued that brain-based explanations reduce psychiatric stigma, I review evidence that they may increase it. In addition, these explanations may have troubling implications for the self-understanding of affected people and for how professionals treat them. I examine the risks and challenges of neuroscientific explanations through the lens of research on essentialist thinking.

Session 4: Neuroscience and the Law

How are we to assess the ability to use and weigh information?

Christopher Ryan

Determinations about a patient's capacity to refuse medical treatment at common law involve determinations about both the patient's ability to understand the information relevant to the decision and his or her ability to use and weigh that information in the balance to come to a decision. This use and weigh element is often controversial and appears to do much of the work in cases where a patient has been found to lack capacity. What exactly it is to be able to use and weigh information and how this should be assessed remain controversial however. Moreover the importance of this issue is likely to grow with recent reforms in Australian mental health legislation requiring clinicians and mental health tribunal members to determine whether or not a patient with mental illness has the capacity to refuse treatment before deciding if involuntary treatment can be initiated or authorised. Drawing on concepts familiar to psychiatric clinicians regarding the assessment of delusions, this paper provides an insight into assessing this use and weigh arm. I reject suggestions that an ability to use and weigh information is congruent with an ability to rationally or logically manipulate information, and instead draw on folk psychology to introduce the concept of "intersubjective validation" as a means of assessing the presence or absence of this element. I suggest that intersubjective validation seems consistent with decisions made in lead common law cases and that it represents the best way to both protect both a patient's valid decisions and a patient from harm if a decision is invalid.

"Scientism" and legal agency: Is neuroscience harming people with disabilities?

Sascha Callaghan

Science has always had a seductive appeal for law, providing "hard evidence" of mental states that could otherwise only be inferred from conduct. While neuroscience evidence of volitional impairments has aided in the defence of people charged with crimes, it also has the potential to undermine developments

in the concept of legal agency, which aims to give people with mental disorder the same rights to make legally enforceable decisions as other citizens. Reflecting on new neuroscience research which indicates that people with schizophrenia literally cannot choose what they want, this paper argues that the legal right to autonomy must remain focused on protecting the human experience of choosing – rather than whether or not choices made by people with disabilities are 'constrained' by brain defects. While neuroscience has the potential to make an important contribution to the question of how we can support the capacity of people with impairments, the danger that it might also undermine rights must also be acknowledged and avoided. This is the trap of "scientism", which has long contributed to the stigmatisation and marginalisation of the voices of vulnerable people.

Neuroscience in the courtroom: From theory to practice

Jeanette Kennett and Allan McCay

In an influential paper Green and Cohen argue that neuroscientific advances will increasingly reveal the neurobiological basis for criminal behaviours. These advances will undermine our retributivist sentiments and will motivate a shift to a utilitarian approach to legal punishment. In this paper we draw upon recent Australian criminal cases in which neuroscientific evidence has been led and on some suggestive remarks made by judges in interviews to examine the influence of neuroscientific evidence in judicial reasoning.

Session 5: Neuroscience and the Self

Authenticity and agency in drug-induced compulsive behaviour

Adrian Carter

There is growing evidence that dopamine replacement therapy (DRT), a range of medications used to treat Parkinson's disease, can cause impulse control disorders (ICDs) such as pathological gambling, compulsive shopping and eating, and hypersexuality. Some individuals treated with DRT have lost their homes and businesses or have been prosecuted for criminal sexual behaviours. The ability for DRT to cause compulsive or addictive behaviours in a significant minority of individuals raises a number of philosophical, ethical and legal questions. There is also limited understanding of the impact that these behaviours have on affected individuals, their views on their control over their behaviour, their responsibility for their actions and their identity. I will examine the evidence that DRT can cause these behaviours. I will then describe the results of a qualitative study conducted with 20 individuals with PD who experienced ICDs to examine the impact of these drug-induced behaviours on individuals' personal identity, agency and their views on their control over and responsibility for their compulsive behaviours. Further research is needed to understand the impact that DRT has on impulsive behaviour and decision-making and to identify those most vulnerable of developing them.

Is there a moral responsibility to delay cognitive ageing and what does it entail?

Cynthia Forlini

As the world's population ages, governments and non-governmental organizations in developed countries are promoting cognitive health to reduce the rate of age-related cognitive decline. A major predicted benefit of maintaining cognitive health in ageing individuals is sustaining economic productivity in an ageing workforce. The scientific evidence cited suggests that mental, physical, and social activities (some of which incorporate neurotechnology) are effective in maintaining cognitive health. In this talk, I will show how policy and popular messages about healthy cognitive ageing imply an individual responsibility to care for the ageing brain but emphasize the economic benefits over the personal benefits. I identify problems with the current approach by evaluating the implicit moral messages in the cognitive ageing discourse against the ethical frameworks (treatment, enhancement, and lifestyle) used in ethical debates about the use of neurotechnology for human enhancement. These messages about cognitive ageing are currently framed as the responsibility to maintain a lifestyle that permits individuals to be the best version of themselves. However, this is a frame that favours those with access to resources and has the potential to stigmatize those who do not conform to the prescribed lifestyle. I propose that policies can balance the interests of society and ageing individuals if stakeholder preferences and perspectives are examined and incorporated into recommendations for healthy cognitive ageing.

The myth of the Lehman Sisters? Sex, testosterone and financial risk-taking

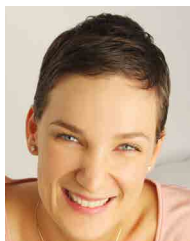
Cordelia Fine

Recent years have seen growing scientific interest in the role of testosterone in financial risk-taking, and this is also a topic of popular discussion. Often this research and debate is grounded in an implicit model in which testosterone is presumed to be the proximal mechanism underlying the evolved masculine trait of risk-taking. This talk will identify a number of problems with the underlying assumptions of this model, and point to the potential impact of its influence on policy and perceptions regarding sex differences and financial risk-taking.

Speaker Biographies

Sascha Callaghan

Sascha Callaghan is a lawyer and lecturer in health law and ethics at the Centre for Values, Ethics and the Law in Medicine, University of Sydney. She has published numerous research articles in the area of capacity and decision-making in mental health, and is currently a lead researcher in the Sydney Neuroscience Network, focusing on the legal and ethical implications of neuroscience research for people with cognitive impairments and mental illness.



Adrian Carter

Adrian Carter is a Senior Research Fellow at the Monash Clinical and Imaging Neuroscience, School of Psychological Sciences, Monash University. His research examines the impact that neuroscience has on understanding and treatment of addiction and other compulsive behaviours. This includes the impact of neuroscience on: our notions of agency, identity and moral responsibility; the use of coercion and the capacity for voluntary control of addictive or compulsive behaviours; and the use of emerging technologies, such as deep brain stimulation and brain imaging, to treat addiction. He received the Australasian Professional Society of Alcohol and Other Drugs "Early Career Award for Excellence in Research and Science" (2012), the Australian National Drug and Alcohol Award for Excellence in Research (2010) and The University of Queensland Dean's Award for Outstanding Research Higher Degree Theses (2010). He has published two books, including 'Addiction Neuroethics: The Promises and Perils of Addiction Neuroscience' (Cambridge University Press, 2012). Dr Carter has over 80 publications, including reports for the World Health Organization (WHO), the European Monitoring Centre for Drugs and Drug Addiction, and the Australian Ministerial Council on Drugs Strategy. He has been an advisor to the WHO and United Nations Office on Drugs and Crime (UNODC) on the use of coercion in drug treatment and the ethical treatment of opioid dependence.



Cordelia Fine

Cordelia Fine is an ARC Future Fellow with the Melbourne School of Psychological Sciences and an Associate Professor at the Melbourne Business School, and the Centre for Ethical Leadership, University of Melbourne. She is the author of two books, including *Delusions of Gender: How our minds, society, and neurosexism create difference* which was short-listed for the Victorian Premier's Literary



Award for Non-Fiction, the Best Book of Ideas Prize 2011, the John Llewellyn Rhys Prize 2010 and the biannual international cross-genre Warwick Prize 2013. Cordelia is a regular contributor to the popular media, including the *New York Times*, *Wall Street Journal*, *Monthly* and *New Statesman*.

Paul Fitzgerald

Paul Fitzgerald is Professor of Psychiatry, Deputy Director and Consultant Psychiatrist at the Monash Alfred Psychiatry Research Centre, a joint research centre of Monash University and the Alfred Hospital in Melbourne, Australia. He runs a research program focused on the conduct of investigative studies of brain function & dysfunction as well as the conduct of a variety of novel clinical trials in Mood, Anxiety, Psychotic and Developmental Disorders. He has published over 250 papers and received grant funding from a range of Australian and international organisations.



Cynthia Forlini

Cynthia Forlini is a Postdoctoral Research Fellow at the University of Queensland Centre for Clinical Research. Her research explores the neuroethics issues in defining the boundaries between enhancement and maintenance of cognitive performance. On one front she works on a project examining the attitudes, prevalence of and motivations for the non-medical use of prescription stimulants by Australian university students. On another front she is interested in the lay and academic attitudes toward caring for the ageing mind including the strategies older individuals (50 years +) employ to keep mentally fit.



Frederic Gilbert

Frederic Gilbert conducts research within the Ethics, Policy & Public Engagement program of the ARC Australian Centre of Excellence for Electromaterials Science (ACES), located in the Faculty of Arts, University of Tasmania. His current research interests concentrate on the ethical issues posed by novel invasive biomedical technologies which overlap concerns in bionics, synthetic biology and personalised medicine. Part of his projects examine the experimental use of new highly invasive and irreversible biomedical materials (i.e. synthetic biosystem, additive-bio-fabricated materials, DNA modified cells, optogenetics, etc.), as well, the use of implantable brain devices for treatment of neurological and psychiatric conditions.



Wayne Hall

Professor Wayne Hall is the Inaugural Director of the Centre for Youth Substance Abuse Research at the University of Queensland. He also has visiting Professorial appointments at the University of Queensland Centre for Clinical Research, the National Drug and Alcohol Research Centre, UNSW, the National Addiction Centre, Kings College London and the London School of Hygiene and Tropical Medicine.



His research contributions in the fields of addiction and mental health have had national and international policy impacts. He has provided authoritative syntheses of diverse research evidence on the health effects of cannabis, the treatment of opioid dependence, and harm related to illicit drug use and the epidemiology of mental disorders in Australia. He has held numerous positions, including NHMRC Australia Fellow (2009-2014), Director of the Office of Public Policy and Ethics at the Institute for Molecular Bioscience at UQ (2001-2005), and Executive Director at the National Drug and Alcohol Research Centre, University of New South Wales (1994-2001). Professor Hall has been an Adviser to the World Health Organization on: the health implications of cannabis use (1993-1996); drug substitution treatment (1995-6); the contribution of illicit drug use to the Global Burden of Disease (2000-2002); the ethics of risk management (2001), vaccines against drug addiction (2001) and neuroscience research on the addictions (2002). He is a Member of the WHO Expert Advisory Panel on Drug Dependence and Alcohol Problems. In 2003 he was identified by the Institute for Scientific Information as a “Highly Cited Author” in social science general, “comprising less than one half of one percent of all publishing researchers – in the last two decades”.

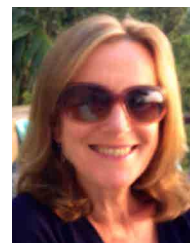
Nicholas Haslam

Nick Haslam is Professor and Head of the School of Psychological Sciences at the University of Melbourne. He received his PhD from the University of Pennsylvania in 1992 and taught for several years at the New School for Social Research in New York City before returning to Melbourne. Nick has published extensively in social and clinical psychology. His most recent book is *Psychology in the Bathroom* (Palgrave Macmillan, 2014).



Jeanette Kennett

Jeanette Kennett is Professor of Moral Psychology in the Philosophy Department at Macquarie University. She leads the Moral Cognition, Neuroethics and Neurolaw Research Cluster of the Macquarie Research Centre for Centre for Agency, Value and Ethics (CAVE) and convenes the Agency and Moral Cognition Research Network. Her research focuses on issues of moral and legal responsibility and on agency impairments in addiction and psychopathology. She is a Fellow of the Australian Humanities Academy.



Allan McCay

Allan McCay is a researcher at the Centre for Agency, Value and Ethics (CAVE) at Macquarie University, and he also teaches at the University of Sydney Foundation Program. Formerly an associate solicitor with the global law firm, Baker and McKenzie, he has been a visiting researcher in the philosophy departments of the University of Stirling and the University of California, Riverside. His research interests include neurolaw, particularly in relation to criminal responsibility and sentencing, philosophy of punishment, free will, and moral agency more generally. He is currently working on a book on behavioural genetics and sentencing, which is under contract to be completed next year.



Carsten Murawski

Carsten Murawski is a Senior Lecturer in the Department of Finance and co-head of the Decision Neuroscience Laboratory at The University of Melbourne. He works at the intersection of economics, finance, psychology, psychiatry and neuroscience investigating fundamental aspects of reward-based decision-making, with the aim to inform our understanding of major economic, social and health problems such as inadequate retirement savings and problem gambling. Prior to joining The University of Melbourne, Carsten was a postdoctoral fellow at the University of Zurich. He has been a visiting researcher at New York University and at Columbia University, New York and has taught at undergraduate and graduate level at The University of Melbourne, the University of Zurich and the Swiss Federal Institute of Technology (ETH) Zurich. Prior to his academic career, he spent several years in the financial industry in New York and London. Carsten holds a PhD from the University of Zurich (Switzerland) and a Master's degree from the University of Bayreuth (Germany).



Brad Partridge

Brad Partridge is an NHMRC Research Fellow at the University of Queensland Centre for Clinical Research (UQCCR) in Brisbane. Brad's background is in psychology and his PhD was through the School of Population Health at The University of Queensland. Brad has previously been a postdoctoral fellow with the Bioethics Research Unit at Mayo Clinic (Minnesota, USA). His current work explores ethical issues in sport.



Christopher Ryan

Chris Ryan is the Director of Consultation-Liaison Psychiatry at Sydney's Westmead Hospital and an Honorary Associate of the Centre for Values, Ethics and the Law in Medicine, where he is the Program Director of the Mental Health and Psychiatry stream. Though his work is primarily clinical, he maintains an active research programme. His numerous publications have covered such areas as delirium, body integrity identity disorder, deliberate self-harm, risk categorisation, patient-therapist sexual contact, mental health legislation, advance directives, physician-assisted dying and social media.



Antonio Verdejo-Garcia

Antonio Verdejo-Garcia performed his research training in several international universities (University of Iowa and John Hopkins in the United States and Cambridge in the UK) and completed his PhD at the University of Granada (Spain) in 2006. From there he moved to the Neuroscience Program of the IMIM-Hospital del Mar in Barcelona, where he had a postdoctoral research position until 2007. In late 2007 he came back to the University of Granada where he was progressively Lecturer, Senior Lecturer and Associate Professor. In 2012, Associate Professor Antonio Verdejo-Garcia was recruited by Monash University to lead a translational research program linking cognitive profiles with treatment outcomes in addiction. The Verdejo-Garcia Lab has a unique focus on translation of cognitive neuroscience findings into treatment services treating addiction and obesity. Current projects are directed to examine the longitudinal association between executive function and decision-making cognitive profiles and brain systems and treatment response and outcomes in addiction and obesity; and to study the impact of cognitive enhancement interventions on treatment outcomes in addiction. Core topics include the domains of executive function, decision-making, interoception and emotion and conditions like addiction and obesity.



Murat Yucel

Professor Murat Yucel gained a *PhD* combined with specialist clinical training in *Clinical Neuropsychology* in 2001 at LaTrobe University. He is currently appointed as a *Professorial Fellow* within the School of Psychological Sciences, Monash University (2013-current) where he directs the Monash Clinical and Imaging Neuroscience (MCIN) laboratory.



Professor Yucel is recognized as an expert in the area of biological psychiatry and addiction neuroscience. His research crafts innovations in the application of psychological and brain imaging techniques to human populations, and has influenced thinking across three main themes: (i) determining the long-term impact of heavy cannabis use on brain, cognition and mental health; (ii) understanding the neural and psychological basis of reduced self-regulation across as drug and behavioural addictions; and (iii) clarifying the underlying neurobiology of several psychiatric illnesses (including psychosis, depression, obsessive-compulsive disorder, and bipolar disorder).

