PHD (CLINICAL PSYCHOLOGY) AND PhD (CLINICAL NEUROPSYCHOLOGY) PROJECTS

A SAMPLE OF PROJECTS ON OFFER FOR 2022

Researchers from the School of Psychological Sciences are offering a range of clinical research projects in 2022 that may be suitable for either PhD (Clinical Psychology) or PhD (Clinical Neuropsychology) (unless otherwise specified). Particular projects or areas of research for candidates applying for the program commencing 2022 are listed below. This list will be updated again in early October.

Researcher	Project Area
Matthew Pase	The Epidemiology of Dementia (Epi-D) lab investigates risk and protective factors for cognitive impairment and dementia. We are interested in all risk factors, including but not limited to genetics, sleep, vascular health, diet, inflammation, and social factors. We also have ongoing projects that validate blood-based biomarkers for the prediction and diagnosis of Alzheimer's disease, cerebrovascular disease, and dementia. *Clin Neuro only*
Laura Jobson	Projects available in the area of culture, trauma and mental health *Clin Psych only*
Adeel Razi	Project 1. Understanding neural mechanisms of psychedelic-induced altered states of consciousness Interest in psychedelic compounds is growing due to their remarkable potential for understanding altered neural states and potential clinical applications. However, there are major knowledge gaps regarding their neuropharmacology. We use magnetic resonance imaging (MRI) to investigate the neural mechanism that underlie psychedelic-induced altered states of consciousness. Our research aims to answer the following important questions: • What are the neural basis of subjective effects of psychedelics? • How do psychedelics act in the brain? • What are their pharmacology and neurobiology? Project 2. Brain imaging and modelling to understand early stage dementia Functional magnetic resonance imaging (fMRI) has been a very popular method for developing biomarkers of disease progression, but thus far had very little clinical impact, largely because MRI can only measure the macroscopic changes in brain structure and function that result from the spread of pathogenic proteins at the microscopic level. Computational modelling has the potential to bridge the gap between micro-scale mechanisms and the macro-scale measures we obtain with MRI. However, most existing models are based on generic methods borrowed from engineering and computer science, and lack biological plausibility. We will

	employ highly-advanced, tailor-made biophysical neuro-computational models to transform our understanding of early-stage neurodegeneration. In this project we will used very well phenotyped already acquired longitudinal datasets of young onset Alzheimer's disease (YOAD) and of Huntington's disease (HD). This project will contribute to our understanding of disease progression through novel use of computational models." *Clin Neuro only*
Megan Spencer-Smith	There are opportunities for PhD research projects on the Challenging cOMmon assumptions of cognitivE Training (COMET) project. This project involves a series of randomised controlled trials in primary schools, working together with other Clinical PhD students in the lab.
Hannah Kirk	Evaluation of a gamified touchscreen app designed to improve executive functioning in developmentally vulnerable primary school children. Paying attention, keeping track of activities, and regulating behaviour are critical skills required to support mental health, peer relationships, and academic success. These skills are underpinned by multiple cognitive processes, collectively known as executive functions. Disruption to these fundamental functions can result in pervasive behavioural symptoms of inattention (e.g., distractibility, poor concentration). Overwhelming evidence highlights that early intervention, that targets cognitive processes when they are undergoing critical growth, has the most effective, sustaining impact on a child's developmental trajectory. A significant proportion (~25%) of Australian children live in remote/regional communities and despite evidence indicating a higher risk of developmental vulnerability, these communities remain grossly underrepresented in clinical research. This exclusion has prevented the development of interventions modelled to the specific needs of children in these communities. The current project aims to meet this need by (1) developing, in partnership with remote/regional communities a digital executive function training program specific to the needs of children living in these communities; and (2) evaluating the acceptability, implementation and efficacy of the executive function training program across metropolitan, regional, and remote primary schools. There is scope within this project for the Clinical PhD candidate to integrate their own interests. This project is funded by a philanthropic donation from The Ian Potter Foundation. The project team is multidisciplinary and comprises of experts in Child Psychology (Assoc Prof Laura Jobson, Dr Megan Spencer-Smith, Prof Kim Cornish), Cognitive Neuroscience (Prof Mark Bellgrove) and Indigenous Engagement (Prof Karen Adams).
Sean Drummond	My students are heavily involved in shaping their own projects. Generally, we start with some of the ongoing work in the lab, and the student has the opportunity to develop their interests, building from the foundation of those projects. This could involve utilising already collected data, ongoing data collection, and/or new data collection. Given current activities in the lab, the areas in which it would make most sense for a student to work include: 1) insomnia (e.g., the role of adherence in CBT for Insomnia; influence of insomnia on the bed partner; neurophysiological underpinnings of insomnia; adapting sleep treatments to specific populations);

	2) interaction of sleep with PTSD and anxiety disorders (e.g., mechanistic role of sleep in fear; the interaction of PTSD and obstructive sleep apnea); and/or 3) impact of sleep loss and circadian disruption on cognitive function. I am open to other ideas outside these areas, assuming we can develop manageable theses around them. Please see my lab website for more information: https://www.monash.edu/turner-institute/sean-drummond-lab/_nocache
Bei Bei	Our group harmonises strengths and knowledge from clinical psychology and sleep and circadian rhythm fields. Topics for HDR projects are worked out collaboratively with the candidate. Projects broadly relate to sleep and mental health, and improving sleep and wellbeing through cognitive-behavioural interventions. In 2022, applicants will be able to work in three highly clinically relevant areas: 1. Perinatal insomnia and mental health. We are launching a large NHMRC funded clinical trial, looking at real-world effectiveness of Cognitive Behavioural Therapy for Insomnia during pregnancy and the postpartum periods, as well as the implementation potential of the intervention in the routine perinatal care (Royal Women's Hospital and Monash Health). Within this trial, there will be ample scope for the candidate to develop research topics in the area of perinatal maternal/infant sleep and mental health, as well as clinical expertise in treating insomnia during this challenging time for new parents. 2. A novel approach to improve sleep in adolescents. Over the past 10 years, our group have extensively studied the unique sleep challenges adolescents face. Based on this body of work, we are piloting a novel intervention to help adolescents sleep better using a combined bio-psycho-social approach. The candidate will play a critical role in the development and delivery of the intervention, and receive training on behavioural management of sleep problems in adolescents. 3. Monash University Healthy Sleep Clinic. This busy outpatient service provides evidence-based treatments for sleep disorders to the broader community, while also serving as a platform to foster research excellence, professional training, and education. Over the past 6 years, our research database has captured comprehensive sleep and mental health profiles on ~900 patients. Candidate working in this area will have the opportunity to have deep-dives into our research database, and receive specialist training in behavioural sleep medicine. There is also scope for the candidate to design and pilot hybrid clinician-digital intervention in a real-world clinical setting.
Yifat Glikmann-Johnston (with Julie Stout)	Our group studies the gut microbiome in Huntington's disease (yes, we collect faecal samples). We are looking at the relationship between bacteria in the gut of people with Huntington's disease and cognition, mood, diet, and sleep. We will work collaboratively with the PhD candidate to come up with a specific topic, based on their interest. We already collected some data, and the candidate could help collecting new data. This project provides a great opportunity to learn and gain hands-on experience working with people with Huntington's disease, doing neuropsychological assessments using telehealth, and monitoring mood, diet, and sleep.
Julie Stout	Testing psychological interventions to address distress and psychosocial

(with various co-supervisors)	adjustment in people with neurocognitive impairment. (with clinical co-supervisors in practice). People with neurodegenerative disease have high rates of depression and anxiety disorders, and experience forms of trauma in relation to learning about and living with serious illnesses that shorten their lives. Little research has empirically evaluated existing forms of psychological treatments or considered how these must be adapted to enable their utility in neurodegenerative diseases. This project will survey evidence of adaptations of psychological therapies for people with neurocognitive illnesses and conduct a research project aimed at adapting and testing the efficacy of psychological interventions in people in the early stages of a young onset dementia or Huntington's disease. (Clin psych or clin neuro)

Planning for the future and episodic thinking ability in Huntington's disease and young onset dementia (with A/Prof Muireann Irish). This project involves an examination of the cognitive skills and practical constraints around planning for the future in people with Huntington's disease and young onset dementia's more broadly. This project combines cognitive science and a real-world clinical problem in designing a future planning process for people with neurodegenerative diseases that specifically affect their ability to project their thinking toward future events. (Clin psych or clin neuro)

Functional performance-based assessment to document everyday cognitive abilities in neurodegenerative diseases (with Dr Yifat Glikmann-Johnston). Clinical trials for new drugs require that the drug has an impact on how a person feels, functions or survives. Cognitive testing alone is not accepted by regulators. The aim of the project is to develop measurement tools to address bridge cognitive measurements and everyday functions, and to test them in neurodegenerative diseases to prepare for inclusion in future clinical trials. (Clin neuro)

Evidence-based, individualized treatment of sleep problems and cognition in Huntington's disease (with Clare Anderson and Melinda Jackson). The aim of this project will be to assess sleep and treat problems and cognitive function in Huntington's disease and evaluate outcomes to determine effectiveness. (Clin psych or clin neuro)

Digital and app-based adaptation of cognitive tests for remote assessment in young onset dementia (with Dr Rebecca Fuller). The aim of this project is to establish and test practices and guidelines around the adaptation of traditional neuropsychological assessment methods for remote testing circumstances, particularly in young onset dementia and other are neurodegenerative conditions. (Clin psych or clin neuro)

Models of Care for Huntington's Disease in Australia (with Dr Yifat Glikmann-Johnston). The project will develop and test models of care, particularly in relation to affective disorder (depression, anxiety) and cognitive decline in Huntington's disease. The project will include developing a means for providing evidence-based services across Australia, using online and telemedicine approaches. (Clin psych or clin neuro)

Impact of Huntington's disease in Young People: Determining unmet needs and solutions (with Dr Kelly Atkins) This project aims to examine the impact of being in a family with the inherited familial disease, Huntington's disease, from childhood to early adulthood. We will characterise the impact on psychological

	well-being and identify and test supports and interventions to address challenges faced by these young people. We will also systematically study what they perceive as their needs for support and what types of research they feel would be important to assist them. (Clin psych)
Farhad Fatehi	Any project related to Digital Health (the use of digital technology for improving health of individuals or community), including mobile apps and virtual reality, for psychological disorders or wellbeing.
Marie Yap	We conduct research in innovative digital health interventions, with a focus on parenting and child and youth mental health, branching across prevention (with community-based samples) into treatment/maintenance (with clinical samples) in mental disorders. Most of our research is multi-disciplinary and involve industry/stakeholder organisational partners, to ensure a rapid translational pathway from research to implementation. I have PhD projects listed in Supervisor Connect which serve as examples of the types of research we do, but am happy to discuss other projects that fit broadly within parenting and child/youth mental health. *Clin Psych only*
Melinda Jackson	Mindfulness intervention for insomnia (*Clin Psych*); cognitive dysfunction in obstructive sleep apnoea (*Clin Neuro*)
Michelle Byrne	Social stress, puberty, and mental health in gender- and sexual-minority adolescents *Clin Psych only*
Adam McKay	Clinical trial of interdisciplinary treament for concussion. This project will build on existing research from our team that has trialled an interdisciplinary treatment for people who have persisting problems following concussion. You will have the opportunity to participate in and shape this important research as it evolves into a larger clinical trial. The research team includes Associate Professor Cathy Willmott, Professor Jennie Ponsord and external collaborators. *Clin Neuro only*
Sharna Jamadar	Neuroscience of parenthood. We have several projects focused on the neuroscience of parenthood. These projects may include neuropsychological and cognitive testing of diverse range of parents (e.g., birthgiving & non-birthgiving mothers, fathers, other types of parents), and/or MRI scanning. In a project ready to start now, we have ethics approval to scan pregnant women to understand plastic changes in the brain during pregnancy and the postpartum period. This is a highly novel project that will have significant implications for our understanding of plastic changes in the brain in the peripartum period. See our recent publications for more details: Sasan et al., 2021 https://psyarxiv.com/6qad9/download?format=pdf Orchard et al. 2021 https://academic.oup.com/cercor/article-abstract/31/2/1270/5927864
Mark Bellgrove (with Mana	Projects will centre around the use of EEG to understand the neurophysiological processes underpinning cognition in youths and adults with ADHD. There is also an opportunity for a student who is interested in

Biabani)	collecting and analysing MRI data from children with ADHD/ ASD The Bellgrove lab is a vibrant interdisciplinary research lab, currently with 30 members, including staff and students. I have supervised many clinical students in the past and understand the demands of the dual clinical and research training.
James Coxon	Exercise and memory consolidation.
Alex Wolkow (with Sean Drummond)	The number of emergency service personnel reporting sleep problems is high (due to shift work schedules, stress, trauma etc.), so too is the proportion of personnel who report mental health conditions. In this longitudinal project, we are interested in examining how sleep disturbances could be related to the development of mental health outcomes (e.g., PTSD, depression, anxiety) in emergency service personnel. In addition to investigating the long-term impact of poor sleep on mental health, my team is also interested in the acute effects of work-related sleep loss and circadian misalignment on physiological stress responses and decision making. In this project, an ecologically relevant simulated emergency work environment will be used to examine how shift work influences work performance and team decision making. Additionally, this project also aims to identify potential stress-related mechanisms underpinning impairments in emergency performance and decisions. By understanding the role poor sleep and circadian misalignment due to shift work play on health and work performance, this project will inform industry practices and training approaches designed to optimise workplace health and safety in emergency services.
Clare Anderson	Project STRIVE: To develop ocular biomarkers of Alzheimer's Disease (AD) risk, and the association of these biomarkers with (i) sleep disturbance and (ii) a functional outcome, such as driving. This project will involve the assessment of cognition, sleep, driving, and laboratory-based ocular paradigms in older adults ranging from Cognitively Healthy to Mild AD.
Rebecca Segrave	Healthy lifestyles for brain, cognitive and mental health: Designing digital assessment and health behaviour change tools.
Gershon Spitz	Transdiagnostic models in traumatic brain injury
Antonio Verdejo-Garcia	Project 1: Social cognition in people with methamphetamine use disorder. This project will use social cognition and interaction tasks (e.g. empathy, social exchange) to improve understanding of social difficulties among people with methamphetamine use related problems. Project 2: Neuroinflammation in obesity: This project will use existing and new neuroimaging datasets to explore if obesity is associated with proxy markers of brain inflammation, as well as its link with cognition and accelerated ageing.
Tracey Sletten	SWITCH: Shift Workers' Individualised Treatments for Circadian Health. An individual's pattern of light exposure is a key factor in determining the response of the body clock to shift work. This project aims to further examine

	the role of light exposure in adaptation to night shift work, and to deliver lighting interventions and individualised recommendations for shift workers to facilitate adaptation to night shift, promote alertness and improve workplace performance and safety, and employee health.
Leona Pascoe (with Peter J Anderson)	1) Investigating associations between cardiovascular health and brain and cognitive outcomes in individuals born very preterm at 20 years of age 2) Exploring gene-outcome associations using brain MRI following very preterm birth
Michael Takagi	1. A mixed methods approach to: (1) better understand how children and adolescents with ABI use everyday technologies (e.g., smartphones), (2) identify the facilitators and barriers to supporting the use of everyday technologies in a rehabilitation context, and (3) examine if and how rehabilitation professionals and caregivers support and teach children to use of everyday technology in their home, school and community as part of their rehabilitation. 2. A stepped-wedge randomized controlled trial (RCT) to investigate the efficacy of a concussion management app (i.e., Headcheck) in improving concussion knowledge (e.g., general knowledge, symptom management) in parents after presentation to a paediatric emergency department. *Clin Neuro only*
Amelia Hicks (with Jennie Ponsford)	Chronic Traumatic Brain Injury This study will examine the long-term (>10yrs) impact of sustaining a traumatic brain injury (TBI). We will examine both how years since injury and advancing age may interact with TBI to impact cognitive, emotional and functional outcomes using longitudinal data. We will also use MR imaging to examine change in brain structure and function over time in the chronic post injury period. *Clin Neuro only*
Gershon Spitz	Examining neuroanatomical underpinning of cognitive and emotional difficulties in chronic traumatic brain injury *Clin Neuro only*
Jennie Ponsford	The impact of cultural background on treatment & recovery in individuals with traumatic brain injury *Clin Neuro only*
Rene Stolwyk	Project 1. Exploring how neuropsychological service provision impacts cognitive, mood and behavioural recovery following stroke. It is now well-established stroke-related cognitive, mood, and behavioural impairments compromise long-term recovery. While a number of specific neuropsychological interventions have been proven effective, limited research has investigated the clinical utility of neuropsychological assessment/rehabilitation services and/or the impact of these services on cognitive, mood and behaviour outcomes for stroke survivors - which will be the aim of this study. Project 2. Examining the reliability and validity of telehealth administration of the Wechsler Adult Intelligence Scale - Five (WAIS-V). The Wechsler Adult Intelligence Scales are some of the most commonly used measures of cognitive function worldwide. Development of the WAIS-V is currently underway, and in recognition of the future potential of telehealth cognitive assessment, this project (in collaboration with Pearson) will

	investigate the reliability, validity and clinical utility of WAIS-V telehealth administration *Clin Neuro only*
Yen Ying Lim	The Dementia and Cognitive Ageing Research Group seeks to understand risk and protective factors for cognitive impairment and Alzheimer's disease. We have several flagship initiatives such as the Healthy Brain Project and the BetterBrains Trial. Projects relating to (1) the contribution of genetic risk factors to cognitive decline and disease progression, (2) novel digital assessments of cognition, and (3) relationships between modifiable risk factors (mood, cognitive engagement, sleep, vascular health, physical activity, social activity) and cognition are available.
Josh Wiley	SleepCaRe Trial The SleepCaRe trial is a multisite clinical trial of cognitive behavioral therapy for insomnia and bright light therapy to treat sleep during chemotherapy for cancer. Working on this project you would: (1) work with an international, interdisciplinary team of experts; (2) be a co-author on the primary outcomes paper from one of the first and largest clinical trials of its kind; (3) lead papers on secondary outcomes of interest to you, such as mental health, quality of life, or adherence; (4) be trained in and conduct clinical interviews and deliver clinical interventions; (5) be deeply integrated into local hospitals, including honorary appointments; (6) make a difference in people's lives during an incredibly difficult time: chemotherapy. CanCope Trial CanCope is a transdiagnostic intervention designed to improve emotion regulation processes to reduce and prevent anxiety and depression symptoms in people with cancer. We have developed and piloted CanCope with some existing data available for analysis, and numerous opportunities for refining and expanding the intervention (e.g., underserved communities, evaluating different delivery modalities, evaluating stepped care approaches to tailor the intensity).
Lucy Albertella	Title: Understanding the cognitive-affective drivers of optimal performance under pressure. The ability to perform optimally under pressure in dynamic, high-pressure environments is critical across many performance domains, including the military, first responders, and competitive sport. While it is known that performing optimally under pressure depends on a range of key cognitive processes (Grier 2015, 2012; Aidman 2020; Lowe et al. 2016), the nature of their involvement and their relationship with optimal functioning remains unclear. This project will focus on using innovative methods to gain insights into the cognitive-affective processes that underlie optimal performance under pressure."
Andrew Phillips	Project: Individual differences in sleep, circadian timing, and alertness in shift workers We have positions available for one or two PhD students next year on the SIM Study (Shiftworker Individualised Modeling). When people work shift work, they are often required to work at times when the circadian system is promoting sleep, and to sleep when the circadian system is promoting wake. This can lead to difficulty sleeping, fatigue, and difficulty staying alert. Light is the main signal that sets the timing of the human circadian clock. We have recently found that people vary considerably in how their circadian clock responds to light, and in how their circadian clock responds to shift work. This

	means that the same pattern of light exposure in two individuals could result in dramatically different circadian timing, sleep and performance. Therefore, the SIM Study seeks to understand more about these individual differences in shift workers, and to develop models that can make individually tailored predictions that can be used to reduce risk in the workplace, and improve scheduling to maximise performance and improve sleep. Multiple research questions are possible within this research program, and can be discussed with the supervision team to best suit the interest of the candidate. Students on this project will gain skills in conducting field and laboratory studies with biological sampling, neurocognitive tests and sleep-wake/light monitoring, and advanced analytical techniques. The student will work under the mentorship of Dr Andrew Phillips, A/Prof Sean Cain, and Dr Julia Stone, and have the opportunity to collaborate with leading experts at Central Queensland University (Prof Sally Ferguson, Dr Matthew Thomas), and Washington State University (Prof Hans Van Dongen). "
Rico Lee	Projects available in the evaluation of a digital mHealth tool promoting healthy brains, lifestyles and habits (including the BrainPAC app). The student can expect to gain skills in clinical assessment and the modelling of complex psychopathological mechanisms, as well as experience working with industry and technology partners.
Rebecca Seagrave	Healthy lifestyles for optimal brain, cognitive and mental health: Designing digital assessment and health behaviour change tools. The BrainPark team are developing a 'fit bit for the brain', a smart digital tool that tracks users mental, cognitive, and behavioural health to give them insights in the overall health for their brain, and personalised lifestyle strategies for optimising it. While there are a massive number of digital mental health tools in the market, very few are evidence based, designed in collaboration with the end user, and steeped in behaviour change theory. This PhD will assist in bringing these elements to the BrainPark tool, and learnings from this to the broader field of m-health developers. The project will incorporate systematic evidence reviews and synthesis, theories of health behaviour change, human centred design for digital mental health tools, and quantitative and qualitative data collection and analysis approaches.
Jessica Trevena-Peters and Jennie Ponsford	This project will employ single-case methodology to assess feasibility and efficacy of goal-driven functional cognitive rehabilitation. Participants will be community-dwelling adults with an acquired brain injury. This is a clinical intervention study drawing on current principles of cognitive rehabilitation and extending these into an applied ('real-world') and individualised framework. *Clin Neuro only*

Check out Supervisor Connect and the School of Psychological Sciences website
for more information about our researchers and their areas of interest

For information about how to apply contact: hdr.psych@monash.edu
or go to www.monash.edu/medicine/psych/teaching/graduate-programs/clinical-doctoral-programs-admission-process