

Brian Robert Cornwell, Ph.D.

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EMPLOYMENT HISTORY

- 2012-2020 Senior Lecturer in Neuroscience
Centre for Mental Health
Faculty of Health, Arts and Design
Department of Psychological Sciences
Swinburne University of Technology
Hawthorn, VIC, Australia
- 2010-2012 Staff Scientist
Section on Neurobiology of Fear and Anxiety
National Institute of Mental Health, National Institutes of Health
Bethesda, Maryland, USA
- 2004-2010 Postdoctoral Research Fellow
Mood and Anxiety Disorders Program
National Institute of Mental Health, National Institutes of Health
Bethesda, Maryland, USA
- 2004 Adjunct Professor
Department of Psychology
Emory University, Oxford College
Atlanta, Georgia, USA

EDUCATION

Emory University, Atlanta, Georgia, USA

- 2004 Ph.D. in Cognitive Neuroscience
2001 M.A. in Cognitive Psychology

University of South Florida, Tampa, Florida, USA

- 1999 B.A., in Psychology with honors, Philosophy minor

RESEARCH TRAINING

- 2004-2010 *Postdoctoral Research, Mood and Anxiety Disorders Program, National Institute of Mental Health, Bethesda, Maryland, USA, Principal investigator: Dr. Christian Grillon.*

- 2001-2004 *Doctoral Dissertation Research*, Department of Psychology, Emory University, Atlanta, Georgia, USA, Research adviser: Dr. Stephan Hamann. Title: Evidence for an embodied mechanism of facial emotion recognition from reversible disruption of somatosensory cortical processes by transcranial magnetic stimulation.
- 1999-2001 *Masters Thesis Research*, Department of Psychology Emory University, Atlanta, Georgia, USA, Research adviser: Dr. Stephan Hamann.
- 1998-1999 *Undergraduate Honours Thesis Research*, Department of Psychology, University of South Florida, Tampa, Florida, USA, Research adviser: Dr. Toru Shimizu.

RESEARCH INTERESTS

affective processes, amygdala, anxiety, attention, cholinergic system, cognitive control, contextual conditioning, dementia, depression, dynamic systems theory, fear, functional magnetic resonance imaging, GABA, gamma activity, hippocampus, learning, magnetoencephalography, memory, neural oscillations, neuropsychopharmacology, Pavlovian conditioning, prefrontal cortices, spatial navigation, startle electromyography, theta rhythm, transcranial magnetic stimulation

PUBLICATIONS

Peer-reviewed articles (44)

- Roxburgh, A.D., White, D.J., & **Cornwell**, B.R. (2022). Anxious arousal alters prefrontal control of stopping. *European Journal of Neuroscience*, *55*, 2529-2541.
- Peters, R., White, D. **Cornwell**, B.R., & Scholey, A. (2020). Functional connectivity of the anterior and posterior hippocampus: Differential effects of glucose in younger and older adults. *Frontiers in aging neuroscience*, *12*, 8.
- Pu, Y., **Cornwell**, B., Cheyne D., & Johnson, B. (2020). Gender differences in navigation performance are associated with differential theta and high-gamma activities in the hippocampus and parahippocampus. *Behavioural Brain Research*, *391*, 112664.
- Grillon, C., Robinson, O., **Cornwell**, B.R. & Ernst, M. (2019). Modeling anxiety in healthy humans: A key intermediate bridge between basic and clinical sciences. *Neuropsychopharmacology*, *44*, 1999-2010.
- Robinson, O., Pike, A., **Cornwell**, B., & Grillon, C. (2019). The translational neural circuitry of anxiety. *Journal of Neurology, Neurosurgery and Psychiatry*, *90*, 1353-1360.
- Roxburgh, A.D., Hughes, M.E., & **Cornwell**, B.R. (2019). Threat-induced anxiety weakens inhibitory control. *Biological Psychology*, *144*, 99-102.
- Pu, Y., **Cornwell**, B., Cheyne D., & Johnson, B (2018). High-gamma activity in the human hippocampus and parahippocampus during inter-trial rest periods of a virtual navigation task. *NeuroImage*, *178*, 92-103.
- Pu, Y., Cheyne, D., **Cornwell**, B., & Johnson, B. (2018). Non-invasive investigation of human hippocampal rhythms using magnetoencephalography: A systematic review. *Frontiers in Brain Imaging Method*, <https://doi.org/10.3389/fnins.2018.00273>.

- Cornwell, B.R., Garrido, M.I., Overstreet, C., Pine, D.S. & Grillon, C. (2017).** The un-predictive brain under threat: a neuro-computational account of anxious hypervigilance. *Biological Psychiatry*, *82*, 447-454.
- Pu, Y., **Cornwell, B.R., Cheyne, D. & Johnson, B.W. (2017).** The functional role of human right hippocampal/parahippocampal theta rhythm in environment encoding during spatial navigation. *Human Brain Mapping*, *38*, 1347-1361.
- Cornwell, B.R., Overstreet, C., & Grillon, C. (2014).** Spontaneous fast gamma activity in the septal hippocampal region correlates with spatial learning in humans. *Behavioural Brain Research*, *261*, 258-264.
- Mueller, S.C., **Cornwell, B.R., Grillon, C., MacIntyre, J., Gorodetsky, E., Goldman, D., Pine, D.S., & Ernst M. (2014).** Evidence of MAO-A genotype involvement in spatial ability in males. *Behavioural Brain Research*, *267*, 106-110.
- Cornwell, B.R., Overstreet, C., Krinsky, M., & Grillon, C. (2013).** Passive avoidance is linked to impaired fear extinction in humans. *Learning and Memory*, *20*, 164-169.
- Grillon, C., Krinsky, M., Vytal, K., Ernst, M., & **Cornwell, B. (2013).** Oxytocin increases anxiety to unpredictable threat. *Molecular Psychiatry*, *18*, 958-960.
- Robinson, O.J., Vytal, K., **Cornwell, B.R. & Grillon, C. (2013).** The impact of anxiety upon cognition: Translational perspectives. *Frontiers in Human Neuroscience*, *7*, 203.
- Vytal, K.E., **Cornwell, B.R., Letkiewicz A.M., Arkin, N.E., & Grillon, C (2013).** The complex interaction between anxiety and cognition: Insight from verbal and spatial working memory. *Frontiers in Human Neuroscience*, *7*, 93.
- Cornwell, B.R., Arkin, N., Overstreet, C., Carver, F.W., & Grillon, C. (2012).** Distinct contributions of human hippocampal theta to spatial cognition and anxiety. *Hippocampus*, *22(9)*, 1848-1859.
- Cornwell, B.R., Mueller, S., Kaplan, R., Grillon, C., & Ernst, M. (2012).** Anxiety, a benefit and detriment to cognition: Behavioral and magnetoencephalographic evidence from a mixed-saccade task. *Brain and Cognition*, *78(3)*, 257-267.
- Cornwell, B.R., Salvadore, G., Furey, M., Marquardt, C.A., Brutsche, N.E., Grillon, C., & Zarate, Jr., C.A. (2012).** Synaptic potentiation is critical for rapid antidepressant response to ketamine. *Biological Psychiatry* *72*, 555-561. News release: <http://www.nih.gov/news/health/aug2012/nimh-03.htm>
- Kim, S.H., **Cornwell, B., & Kim, S.E. (2012).** Individual differences in emotion regulation and hemispheric metabolic asymmetry. *Biological Psychology*, *89(2)*, 382-386.
- Vytal, K., **Cornwell, B., Arkin, N., & Grillon, C. (2012).** Describing the interplay between anxiety and cognition: From impaired performance under low cognitive load to reduced anxiety under high load. *Psychophysiology*, *49(6)*, 842-852.
- Cornwell, B.R., Alvarez, R.P., Lissek, S., Kaplan, R., Ernst, M., and Grillon, C. (2011).** Anxiety overrides the blocking effects of high perceptual load on amygdala reactivity to threat-related distractors. *Neuropsychologia*, *49*, 1363-1368.

- Cornwell, B.R., Heller, R., Biggs, A., Pine, D.S. & Grillon, C (2011).** Becoming the center of attention in social anxiety disorder: Startle reactivity to a virtual audience during speech anticipation. *Journal of Clinical Psychiatry*, 72(7), 942-948.
- Mueller, S.C., Merke, D.P., Leschek, E.W., Fromm, S., Grillon, C., **Cornwell, B.R., VanRyzin, C., & Ernst, M.** (2011). Grey matter volume correlates with virtual water maze task performance in boys with androgen excess. *Neuroscience*, 197, 225-232.
- Rich, B.A., Carver, F.W., Holroyd, T., Rosen, H.R., Mendoza, J.K., **Cornwell, B.R., Fox, N.A., Pine, D.S., Coppola, R., & Leibenluft, E.** (2011). Different neural pathways to frustration in youth with pediatric bipolar disorder and severe mood dysregulation. *Journal of Psychiatric Research*, 45, 1283-1294.
- Cornwell, B.R., Salvatore, G., Colon-Rosario, V., Latov, D., Carver, F.W., Holroyd, T., Coppola, R., Manji, H.K., Zarate, Jr., C.A., & Grillon, C.** (2010). Abnormal hippocampal functioning and impaired spatial navigation in depressed individuals: Evidence from whole-head magnetoencephalography. *American Journal of Psychiatry*, 167, 836-844.
- Rich, B.A., Holroyd, T., Carver, F.W., Onelio, L.M., Mendoza, J.K., **Cornwell, B.** Fox, N.A., Pine D.S., Coppola, R., Leibenluft, E. (2010). A preliminary study of the neural mechanisms of frustration in pediatric bipolar disorder using magnetoencephalography. *Depression & Anxiety*, 27(3), 276-286.
- Salvatore, G., **Cornwell, B.R., Sambataro, F., Latov, D., Colon-Rosario, V., Carver, F., Holroyd, T., Diaz-Granados, N., Machado-Vieira, R., Grillon, C., Drevets, W.C., Zarate, Jr., C.A.** (2010). Anterior cingulate desynchronization and functional connectivity with the amygdala during a working memory task predict rapid antidepressant response to ketamine. *Neuropsychopharmacology*, 35, 1415-1422.
- Mueller, S.C., Temple, V., **Cornwell, B., Grillon, C., Pine, D.S., & Ernst, M.** (2009). Impaired spatial navigation in pediatric anxiety. *Journal of Child Psychology and Psychiatry*. 50(10), 1227-1234.
- Salvatore, G., **Cornwell, B.R., Colon-Rosario, V., Coppola, R., Grillon, C., Zarate, Jr., C.A., & Manji, H.K.** (2009) Increased anterior cingulate cortical activity in response to fearful faces: a neurophysiological biomarker that predicts rapid antidepressant response to ketamine. *Biological Psychiatry*, 65(4), 289-295. News release: <http://www.nimh.nih.gov/science-news/2008/millisecond-brain-signals-predict-response-to-fast-acting-antidepressant.shtml>
- Cornwell, B.R., Carver, F., Coppola, R., Johnson, L., Alvarez, R., & Grillon, C.** (2008). Evoked amygdala responses to negative faces revealed by adaptive MEG beamformers. *Brain Research*, 1244, 103-112. News release: <http://www.nimh.nih.gov/science-news/2008/brains-response-to-scary-faces-imaged-faster-than-you-can-say-boo!.shtml>
- Cornwell, B.R., Echeverri, A.M., Covington, M.F., & Grillon, C.** (2008). Modality-specific attention under imminent but not remote threat of shock: Evidence from differential prepulse inhibition of startle. *Psychological Science*, 19(6), 615-622.
- Cornwell, B.R., Johnson, L.L., Holroyd, T., Carver, F.W., & Grillon, C.** (2008). Human hippocampal and parahippocampal theta during goal-directed spatial navigation predicts performance on a virtual Morris water maze. *Journal of Neuroscience*, 28, 5983-5990. (Commented upon by Neil Burgess, Faculty of 1000 Biology)

- Lissek, S., Biggs, A. L., Rabin, S., **Cornwell**, B. R., Alvarez, R. P., Pine, D. S., & Grillon, C. (2008). Generalization of conditioned fear-potentiated startle in humans: experimental validation and clinical relevance. *Behavior Research & Therapy*, *46*(5), 678-687.
- Mueller, S.C., Temple, V., Oh, E., VanRyzin, C., Williams, A., **Cornwell**, B., Grillon, C., Pine, D.S., Ernst, M., & Merke, D.P. (2008). Early androgen exposure modulates spatial cognition in congenital adrenal hyperplasia (CAH). *Psychoneuroendocrinology*, *33*(7), 973-980.
- Cornwell**, B.R., Baas, J.M., Johnson, L., Holroyd, T., Carver, F.W., Lissek, S., & Grillon, C. (2007). Neural responses to auditory stimulus deviance under threat of electric shock revealed by spatially-filtered magnetoencephalography. *NeuroImage*, *37*, 282-289.
- Cornwell**, B.R., Echiverri, A.M., & Grillon, C. (2007). Sensitivity to masked conditioned stimuli predicts conditioned response magnitude under masked conditions. *Psychophysiology*, *44*, 403-406.
- Duncko, R., **Cornwell**, B., Cui, L., Merikangas, K.R., & Grillon, C. (2007). Acute exposure to stress improves performance in trace eyeblink conditioning and spatial learning tasks in healthy men. *Learning and Memory*, *14*, 329-335.
- Grillon, C & **Cornwell**, B (2007). Comment on “Fearful and Sexual Pictures Not Consciously Seen Modulate the Startle Reflex in Human Beings”, by Ruiz-Padial & Vila. *Biological Psychiatry*, *62*(5), 541.
- Lissek, S., Orme, K., McDowell, D.J., Johnson, L.L., Luckenbaugh, D., Bass, J.M.P., **Cornwell**, B.R. & Grillon, C (2007). Emotion regulation and potentiated startle across affective picture and threat of shock paradigms. *Biological Psychology*, *76*(1-2), 124-133.
- Cornwell**, B.R., Echiverri, A.M. & Grillon, C. (2006). Attentional blink and prepulse inhibition of startle are positively correlated. *Psychophysiology*, *43*(5), 504-510.
- Cornwell**, B.R. Johnson, L., Berardi, L. & Grillon, C. (2006). Anticipation of public speaking in virtual reality reveals a relationship between trait social anxiety and startle reactivity. *Biological Psychiatry*, *59*(7), 664-666.
- Grillon, C., Baas, J.M.P., **Cornwell**, B., & Johnson, L. (2006). Context conditioning and behavioral avoidance in virtual reality environment: Effect of predictability. *Biological Psychiatry*, *60*(7), 752-759.
- Cornwell**, B.R., Barbey, A.K. & Simmons, W.K. (2004). The embodied bases of supernatural concepts. *Behavioral and Brain Sciences*, *27*(6), 735-736.

Book Chapter

- Grillon, C., & **Cornwell**, B.R. (2009). Anxiety disorders: Psychophysiological Aspect. In: B.J. Sadock, V.A. Sadock, & P.R. Ruiz (Eds.), *Comprehensive Textbook of Psychiatry* (9th Edition): Lippincott Williams & Wilkens.

CONFERENCE PRESENTATIONS

Symposia presentations

- 2019 **Cornwell, B.R.** (speaker). Cortical mechanisms of impaired cognitive control in anxiety. Invited speaker for a symposium entitled, *Neuroscience of fear and anxiety*. Australasian Winter Conference for Brain Research. Queenstown, New Zealand.
- 2018 **Cornwell, B.R.** (chair, speaker). Biased feedforward cortical processing in anxious hypervigilance. Organized symposium entitled *Neuropsychiatric insights from MEG*. 21st International Conference on Biomagnetism (BIOMAG). Philadelphia, PA.
- 2015 **Cornwell, B.R.** (co-organizer, speaker). Magnetic source imaging. Swinburne University NeuroImaging Symposium: Principles and applications of magnetoencephalography, Melbourne, VIC, Australia, July 29-30, 2015.
- 2014 **Cornwell, B.R.** (speaker) A translational perspective on the human hippocampus in spatial cognition and anxiety. Invited speaker for an educational short course entitled, *Learning, memory, and inflammation: Behavioral and Brain assessments in humans and animals*. Annual meeting, PsychoNeuroImmunology Research Society (PNIRS). Philadelphia, PA.
- 2013 **Cornwell, B.R.** (speaker) Contextual and pharmacologic modulation of human hippocampal theta oscillations. Invited speaker for a symposium entitled, *Pharmacologic modulation of anxiety circuits: Transient plasticity revealed through neuroimaging*. 68th Annual Scientific Convention & Program, Society of Biological Psychiatry, San Francisco, CA.
- 2012 **Cornwell, B.R., Mueller, S., & Ernst, M.** (speaker) Anticipatory anxiety enhances stimulus-driven actions. Invited speaker for a nano-symposium entitled, *Neural circuitry underlying anxiety and processing of fear*. Society for Neuroscience Annual Meeting, New Orleans, LA.
- Cornwell, B.R.** (speaker). Markers of cortical plasticity in antidepressant action. Invited speaker for a symposium entitled, *Development of neuroimaging-based biomarkers*. National Institutes of Health Research Festival, Bethesda, MD.
- Cornwell, B.R.** (chair, speaker) NMDA antagonism and cortical gamma activity in depression: Implications for the rapid antidepressant action of ketamine. Organized symposium entitled *Pharmacology- MEG insights into brain dynamics and neuropsychiatric disease*. 18th International Conference on Biomagnetism (BIOMAG), Paris, France.
- Cornwell, B.R.** (speaker) Evidence that cortical plasticity underlies ketamine's rapid antidepressant action. Invited speaker for a symposium entitled, *Aberrant neural systems in psychiatric illnesses: Recent discoveries with MEG*. 67th Annual Scientific Convention & Program, Society of Biological Psychiatry, Philadelphia, PA.
- 2010 **Cornwell, B.R.** (speaker) Virtual spatial navigation and hippocampal functioning in healthy and clinically-depressed individuals. Invited speaker for a symposium entitled, *MEG in psychiatric and neurologic populations: predicting clinical symptoms and treatment efficacy*, 17th International Conference on Biomagnetism (BIOMAG), Dubrovnik, Croatia.

Other Oral Presentations

- 2017 **Cornwell, B.R.** (speaker) *On the cognitive significance of human hippocampal theta*, ARC Centre of Excellence for Cognition and Its Disorders, Macquarie University, Sydney, NSW, Australia, December 5, 2017
- 2016 **Cornwell, B.R.** (panel discussant). Invited discussant on a panel asking *What does MEG add to the field of neuroscience above and beyond other existing techniques?* NIH MEG-North America Workshop. National Institute of Mental Health, Bethesda, MD USA, November 1, 2016.
- 2015 **Cornwell, B.R.** (speaker) Adaptive MEG beamformers. Invited speaker for a workshop entitled, *Neuroimaging methods and analysis*, ARC Centre of Excellence for Cognition and Its Disorders, Macquarie University, Sydney, NSW, Australia, January 28, 2015.
- 2013 **Cornwell, B.R.** MEG biomarkers of treatment response and pathology in depression. Departmental Colloquium, School of Psychology and Psychiatry, Monash University, Clayton, VIC, Australia. June 28, 2013.
- Cornwell, B.R.** MEG biomarkers of treatment response and pathology in depression. Departmental Colloquium, Faculty of Life and Social Sciences, Swinburne University of Technology, Hawthorn, VIC, Australia. March 13, 2013.
- Cornwell, B.R.** MEG biomarkers of rapid antidepressant response to ketamine in treatment-resistant MDD. Invited lecture at the Monash Alfred Psychiatry Research Centre, Melbourne, VIC, Australia. March 7, 2013.
- 2012 **Cornwell, B.R.** MEG beamformers and biomarkers. Invited lecture at the Brain and Psychological Sciences Research Centre, Swinburne University of Technology, Hawthorn, VIC, Australia.
- 2006 **Cornwell, B.R.** Neural correlates of auditory mismatch detection under threat of shock revealed by event-related beamformers. 10th Scientific Retreat of the National Institute of Mental Health, Gettysburg, PA.

Poster presentations

- 2019 *Roxburgh, A.D. & **Cornwell, B.R.** Protracted beta activity in left IFG/AI and delayed response inhibition in anxiety: An MEG study. 25th annual meeting of the Organization for Human Brain Mapping, Rome, Italy.
- 2015 **Cornwell, B.R.**, Scholey, A., & Cox, K. Human hippocampal theta supports allocentric-based spatial navigation in virtual reality. Australasian Cognitive Neuroscience Society, Auckland, New Zealand.
- 2014 **Cornwell, B.R.** GABAergic control of anxiety-potentiated responding to stimulus deviance. International Cognitive Neuroscience Society, Brisbane, QLD, Australia.
- 2011 **Cornwell, B.R.**, Alvarez, R.P., Lissek, S., Ernst, M., & Grillon, C. Anxiety preserves amygdala reactivity to threat-related distractors under high perceptual load. 66th Annual Scientific Convention & Program, Society of Biological Psychiatry, San Francisco, CA.

Cornwell, B.R., Arkin, N., Overstreet, C., Carver, F.W., & Grillon, C. Distinct contributions of human hippocampal theta to spatial cognition and contextual fear. Society for Neuroscience Annual Meeting, Washington, D.C.

Cornwell, B.R., Salvatore, G., Furey, M., Marquardt, C., Grillon, C., & Zarate, C.A., Jr. A sensory cortical signature of ketamine's rapid antidepressant effects. 66th Annual Scientific Convention & Program, Society of Biological Psychiatry, San Francisco, CA.

2010 ***Arkin, N.E., Overstreet, C.M., Grillon, C., & Cornwell, B.R.** Brain correlates of escape from shock in virtual reality. 65th Annual Scientific Convention & Program, Society of Biological Psychiatry, New Orleans, LA.

***Overstreet, C.M., Arkin, N.E., Grillon, C., & Cornwell, B.R.** Anxiety modulates hippocampal activity during virtual navigation. 65th Annual Scientific Convention & Program, Society of Biological Psychiatry, New Orleans, LA.

2009 **Cornwell, B.R., Mueller, S.C., Kaplan, R., Ernst, M., & Grillon, C.** Opposing effects of anxiety on reflexive versus volitional behavior: An MEG study of pro- and anti-saccades. 15th annual meeting of the Organization for Human Brain Mapping, San Francisco, CA.

2008 **Cornwell, B.R., Duncko, R., Kaplan, R., & Grillon, C.** Human hippocampal oscillations during navigation of a virtual Morris water maze following acute stress exposure. Society for Neuroscience Annual Meeting, Washington, D.C.

2007 **Cornwell, B.R., Johnson, L., Carver, F., Holroyd, T., Alvarez, R., Grillon, C.** Empirical evidence that amygdala and hippocampus activity can be resolved by adaptive MEG beamformers. 13th annual meeting of the Organization for Human Brain Mapping, Chicago, IL.

Cornwell, B.R., Johnson, L., & Grillon, C. Capturing neural processes of fear excitation and inhibition with event-related synthetic aperture magnetometry. 14th annual meeting of the Cognitive Neuroscience Society, New York, NY.

Cornwell, B.R., Johnson, L., & Grillon, C. Enhanced sensory cortical gamma oscillations during fear-conditioning revealed by spatially-filtered magneto-encephalography (MEG). 47th annual meeting of the Society for Psychophysiology, Savannah, GA.

2006 **Cornwell, B.R., Johnson, L., Carver, F., Holroyd, T., & Grillon, C.** Neural correlates of auditory mismatch detection under threat of shock revealed by event-related beamformers. 15th World Congress on Biomagnetism (BIOMAG), Vancouver, British Columbia, Canada.

Cornwell, B.R., Baas, J., Johnson, L., Carver, F., Holroyd, T. & Grillon, C. Neuromagnetic correlates of orienting to deviant auditory stimuli during anxious anticipation of electric shock. 13th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

2005 **Cornwell, B.R., Johnson, L., Berardi, L. & Grillon, C.** Public speaking to a virtual audience: Startle reactivity and subjective experience. 60th Annual convention & scientific program, Society of Biological Psychiatry, Atlanta, GA.

2004 **Cornwell, B.R. & Hamann, S.** Cortical regions mediating facial emotion recognition revealed by TMS. 11th annual meeting of the Cognitive Neuroscience Society, San Francisco, CA.

2003 **Cornwell, B.R. & Hamann, S.** Detection of threat under binocular rivalry suppression. 10th annual meeting of the Cognitive Neuroscience Society, New York, NY.

*Trainee

TEACHING

SWINBURNE UNIVERSITY OF TECHNOLOGY

Unit Convenor, Lecturer and Demonstrator for Neuroimaging (NEU20007)

2018, 2017

An undergraduate course covering principles and methods of neuroimaging, primarily MRI, fMRI, and MEG. A mixture of lecture and computer lab tutorials covering a range of topics including k-space, BOLD modeling, preprocessing and general linear modeling in SPM, basic time series processing, and adaptive MEG beamformer analyses in Fieldtrip. I specifically lectured on fMRI processing and statistical analysis, and MEG hardware and source analyses.

Lecturer and Lab Demonstrator for Sensation and Perception.

2019, 2018, 2017, 2016, 2015

An undergraduate course covering major sensory and perceptual systems. Labs offer hands-on experience with psychophysical methods and other measurement techniques among the major sensory modalities. I lectured on the chemical senses (olfaction and taste).

Lecturer for Psychology 100

2018

An introductory-level undergraduate course into psychology. I lectured specifically on emotion and biological bases of behavior.

Lecturer for Cognition and Human Performance

2017

An undergraduate course covering general topics on cognition. I lectured specifically on emotion, its biological bases and its influence on cognitive processes such as attention and memory.

Unit Convenor, Lecturer and Demonstrator for Neuroscience Methods (NEU40002).

2017, 2016, 2014, 2013

An honor's level course covering principles and methods of neuroimaging, including EEG, MEG, MRI and fMRI. Mostly lecture-based with two computer lab demonstrations of MEG and fMRI analyses. I lectured specifically on clinical neuroscience methods and led the demonstration on MEG data analysis.

Lecturer for Advanced Biomedical Imaging.

2016, 2015

An undergraduate course covering major biomedical imaging techniques including X-ray, electron microscopy and MRI. I lectured specifically on imaging in the neurosciences.

Lab Demonstrator for Neurophysiology

2016, 2015

An undergraduate course covering basic neurophysiology. Labs explore visual and auditory systems, and smooth and skeletal muscle systems

EMORY UNIVERSITY

Unit Convenor and Lecturer for Human Development

2004

An undergraduate course at Oxford college that covers physical, cognitive and emotional development from birth to adulthood. I created all the course content, delivered the lectures, and evaluated the students.

Teaching Assistant for Research Methods

2003, 2002

An undergraduate course that covers major research methods in psychology including naturalistic observation, survey and experimental research. I directed lab sessions for basic skill development.

Teaching Assistant for Introduction to Psychology

2001

A first-year undergraduate course that provides a general survey of psychology. I led study sections and assisted in grading examinations.

Teaching Assistant for Introduction to Statistics

2000

An undergraduate course that covers major statistical concepts and tools used in psychological sciences. I conducted lab sessions for practical applications using SPSS

ACADEMIC STUDY ASSOCIATES (ASA)

Instructor for Introduction to Psychology

2002

A 4-week summer course for advanced high school students that introduces important topics in psychology and behavioral sciences. I created the content and delivered all the lectures and in-class demonstrations.

POSTGRADUATE SUPERVISION

PhD thesis

Yi Pu, Macquarie University, (2014-2017, completed)

Ariel Roxburgh, Swinburne University of Technology (2017-2020, completed)

Honours thesis

Stefanie Bird, Swinburne University of Technology (2014, completed)

Ariel Roxburgh, Swinburne University of Technology (2016, completed)

Dylan Kerr, Swinburne University of Technology (2017, completed)

Melinda McCabe, Monash University (2017, completed)

Alexandra Anderson, Swinburne University of Technology (2018, completed)

Emily Mercieca, Monash University (2018, completed)

Umang Randev, Swinburne University of Technology (2018, completed)

Alyssa Dugosija, Swinburne University of Technology (2019, completed)

Ella Rowsthorn, Swinburne University of Technology (2019, completed)

GRANTS

\$1,656,870	2013-2019	Scholey, A., Cornwell , B.R., Crewther, D., Pipingas, A., Stough, C., Wesnes K., & Cohen D. Controlled Trials in 'At Risk' humans to establish the cognitive benefits of a nutrient mixture and underlying mechanisms of action – the cognitive aging, nutrition and neurogenesis trial. Center for Nutrition, Learning and Memory Grant Challenge Grant.
\$17,500	2018-2019	Cornwell , B.R. Altered brain network processing and impaired executive control functioning in anxiety. Barbara Dicker Brain Sciences Foundation Grant.
\$5000	2017-2018	*Roxburgh, A, & Cornwell , B.R. Neurocircuitry underlying anxiety-related impulsivity. Barbara Dicker Brain Sciences Foundation Grant.
\$15,000	2015-2016	Cornwell , B.R., & Scholey, A. Virtual navigation training to enhance hippocampal-dependent spatial ability in cognitively-impaired elderly individuals. Barbara Dicker Brain Sciences Foundation Grant.
\$13,872	2014-2015	Cornwell , B.R., & Scholey A. Brain oscillatory correlates of virtual spatial navigation in healthy and cognitively-impaired aging populations Barbara Dicker Brain Sciences Foundation Grant.
\$60,000	2010-2012	Cornwell , B.R. Neuropsychopharmacological investigation of the SSRI citalopram and novel CRH1 receptor antagonist on human brain correlates of anxious hypervigilance Young Investigator Award, National Alliance for Research on Schizophrenia and Depression (NARSAD).

*Trainee

Additional awards

- Fellows Award for Research Excellence (FARE), National Institutes of Health, 2009 (\$2000)
- Travel Fellowship, Wisconsin Symposium on Emotion, 2006 (\$2000)

PROFESSIONAL SERVICE

- Associate Editor, *Biological Psychology*, 2012-2021
- *Ad hoc* reviewer for the following journals:
 - Alcohol and Alcoholism
 - American Journal of Psychiatry**
 - Behavioral Neuroscience
 - Behavior Research Methods
 - Biological Psychiatry**
 - Biological Psychology
 - Cerebral Cortex**
 - Cognition and Emotion

Cognitive, Affective and Behavioral Neuroscience

Current Biology

Depression & Anxiety

Human Brain Mapping

International Journal of Developmental Neuroscience

International Journal of Psychophysiology

JAMA Neurology

Journal of the American Academy of Child and Adolescent Psychiatry

Journal of Abnormal Psychology

Journal of Cognitive Neuroscience

Journal of Experimental Psychology: Learning, Memory, & Cognition

Journal of Neurophysiology

Journal of Neuroscience

Journal of Psychiatry and Neuroscience

Journal of Psychopharmacology

NeuroImage

Neuropsychologia

Neuropsychopharmacology

PLoS Biology

PLoS ONE

Psychiatric Research – Neuroimaging

Psychological Medicine

Psychophysiology

Psychoneuroendocrinology

Social Cognitive and Affective Neuroscience

COMMUNITY ACTIVITIES

- Presented a formal lecture entitled *Hippocampal-dependent spatial memory across the adult lifespan*. Barbara Dicker Oration, Swinburne University of Technology, Hawthorn, Victoria, Australia, September 17, 2015.
- Presented a formal lecture entitled *Recent and Current Brain Science Research at Swinburne University of Technology*. University of the third age (U3A) Deepdene, Balwyn, Victoria, Australia, April 18, 2013.
- Presented a formal lecture entitled *Brain Sciences Research at Swinburne University of Technology*. University of the third age (U3A) Hawthorn, Glen Iris, Victoria, Australia, January 29, 2013.
- Conceived and presented hands-on science exhibit, *Exercise your hippocampus*. USA Science and Engineering Festival, Walter E. Washington Convention center, Washington, D.C., April 28, 2012.
- Conceived and presented hands-on science exhibit, *Are You Smarter than a Rat?* USA Science and Engineering Festival, National Mall, Washington, D.C., October 23, 2010.
- Member of organizing committee for the 2007 Annual Scientific Retreat of the National Institute of Mental Health

Last updated June 2022