

EDUCATION

Oct 2018 to May 2022	Doctor of Philosophy - Neuroscience , University of Melbourne » Thesis title: Early adversity, brain development, and mental health during adolescence » Advisors: Prof. Sarah Whittle, Prof. Andrew Zalesky
Sep 2016 to Jun 2018	Master of Research - Neuroscience , Université de Bordeaux » <u>Ranked 1st in the cohort</u> (received 'Mention Très Bien' [highest honours]) » Study emphases: Cognitive neuroscience, Pathophysiology of psychiatric disorders, M.R.I, Functional neuroanatomy, Statistics (using R)
Jul 2011 to Mar 2013	Post-graduate degree in Business Management (MBA) , MICA, Ahmedabad » Study emphases: marketing, market research, consumer behaviour » Master thesis: studying the behavioural response of women to the use of the colour pink in advertisements directed towards females
Jul 2008 to Jun 2011	Bachelor of Science (Honours) - Biochemistry , University of Delhi » <u>First Division (Highest class)</u> » Study emphases: Human physiology, metabolism, immunology, cell biology, molecular biology, genetics
May 2008	Rishi Valley School, ISC » <u>Ranked 1st in the cohort (science)</u> - graduated with proficiency in Mathematics (94%), Biology (95%), Chemistry (92%) and Physics (86%)

RESEARCH EXPERIENCE

Jul 2022 to present	Postdoctoral Fellow, Harvard University » Studying the effects of early adverse experiences on brain development and mental health during childhood and adolescence » Advisor: Prof. Katie McLaughlin
Feb 2022 to Jun 2022	Research Assistant, University of Melbourne » Projects: designing and implementing pipelines for open science practices in the lab, examining associations between brain development and mental health during adolescence » Supervisor: Prof. Sarah Whittle
Oct 2018 to May 2022	Doctoral Candidate - Neuroscience, University of Melbourne » Studying the effects of early adverse experiences on brain development and mental health during childhood and adolescence » Thesis submitted on 19/02/2022 » Advisors: Prof. Sarah Whittle, Prof. Andrew Zalesky
Jul 2021 to Feb 2022	Research Assistant, Murdoch Children's Research Institute » Systematic review the association between school connectedness and depression and anxiety during adolescence for the Wellcome Trust » Supervisors: Prof. Susan Sawyer, Prof. George Patton, Dr. Monika Raniti
Jan 2018 to Jun 2018	Master Thesis » Studied synaptic plasticity at CA3-CA3 recurrent collaterals <i>in vivo</i> . » Techniques: <i>in vivo</i> patch-clamp electrophysiology, optogenetics, stereotaxic surgery, immunohistochemistry. Supervisor: Prof. Christophe Mulle and Dr. Ashley Kees (IINS, CNRS).
Jan 2017 to Jun 2017	Master Thesis » Studied the effect of the restoration of the sleep/wake cycle, by antagonising the orexinergic system, on the cognitive and motor capabilities of mouse model of Huntington's disease. Supervisor: A/Prof. Yoon H. Cho (INCI, CNRS).

PEER-REVIEWED PUBLICATIONS

Google scholar profile: <https://scholar.google.com/citations?user=kVfKhJUAAAAJ&hl=en>
Trainee authors/presenters are underlined

- 2022 [under review] Thomas, M., **Rakesh, D.**, Whittle, S., Upthegrove, R., Sheridan, M., Cropley, V. The neural, stress hormone and inflammatory correlates of childhood deprivation and threat in psychosis: A systematic review, *Neuroscience and Biobehavioral Reviews*
- 2022 [under review] Zhang, L., **Rakesh, D.**, Cropley, V., Whittle, S. A systematic review of the link between the brain and resilience function in childhood and adolescence, *Neuroscience and Biobehavioral Reviews*
- 2022 [under review] Pozzi, E., **Rakesh, D.**, Gracia-Tabuenca, Z., Bray, K., Richmond, S., Seal, M., Schwartz, O., Vijayakumar, N., Yap, M., Whittle, S., Maternal neglectful behavior is associated with delayed development of functional connectivity during the transition from late childhood early adolescence, *Journal of Child Psychology and Psychiatry*
- 2022 [in revision] Jameei, H., **Rakesh, D.**, Zalesky, A., M.J., Reay, W.R., Wray, N., Di Biase, M. Linking MRI brain indices to polygenic risk for schizophrenia: a systematic review, *Schizophrenia Bulletin*
- 2022 [in revision] **Rakesh, D.**, Elzeiny, R., Vijayakumar, N., Whittle, S. A longitudinal study of childhood maltreatment, subcortical development and subcortico-cortical structural maturational coupling from early to late adolescence, *Psychological Medicine*
- 2022 Raniti, M., **Rakesh, D.**, Patton, G., Sawyer, S. M. (2022) School connectedness and depression and anxiety during adolescence – a systematic review of prospective studies, *BMC public health*, 22(1), 1-24
- 2022 **Rakesh, D.**, Zalesky, A., Whittle, S. Assessment of Parent Income and Education, Neighborhood Disadvantage, and Child Brain Structure. *JAMA Network Open*, 5(8), e2226208-e2226208.
- 2022 Saragosa-Harris, N., Chaku, N., MacSweeney, N., Williamson, V. G., Scheuplein, M., Feola, B., ... **Rakesh, D.**, & Mills, K. L. (2022). A practical guide for researchers and reviewers using the ABCD Study and other large longitudinal datasets. *Developmental cognitive neuroscience*, 101115.
- 2022 **Rakesh, D.**, Zalesky, A., Whittle, S. (2022). The role of school environment in brain structure, connectivity, and mental health in children – a multi-modal investigation, *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* [in press]
- 2022 Whittle, S., Pozzi, E., **Rakesh, D.**, Kim, J. M., Yap, M. B., Schwartz, O. S., ... & Vijayakumar, N. (2022). Harsh and inconsistent parental discipline is associated with altered cortical development in children. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging* [in press]
- 2022 **Rakesh, D.**¹, Whittle, S.¹... ENIGMA consortium. The role of educational attainment and brain morphology in major depressive disorder: findings from the ENIGMA Major Depressive Disorder consortium, *Journal of Abnormal Psychology* [in press]
- 2021 **Rakesh, D.**, Whittle, S. (2021) Socioeconomic status and the developing brain – a systematic review of neuroimaging findings in youth. *Neuroscience and Biobehavioral Review*, 130, 379-407.
- 2021 **Rakesh, D.**, Zalesky, A., Whittle, S. (2021). Similar but distinct-Effects of different socioeconomic indicators on resting state functional connectivity: findings from the Adolescent Brain Cognitive Development (ABCD) Study®. *Developmental Cognitive Neuroscience*, 101005.
- 2021 **Rakesh, D.**, Cropley, V., Zalesky, A., Vijayakumar, N., Allen, N. B., & Whittle, S. (2021). Neighborhood disadvantage and longitudinal brain-predicted-age trajectory during adolescence. *Developmental Cognitive Neuroscience*, 101002.
- 2021 **Rakesh, D.**, Allen, N. B., & Whittle, S. Longitudinal changes in within-salience network functional connectivity mediate the relationship between childhood abuse and neglect, and mental health during adolescence, *Psychological Medicine*, 1-13
- 2021 **Rakesh, D.**, Seguin, C., Zalesky, A., Cropley, V., & Whittle, S. Associations between neighborhood disadvantage, resting-state functional connectivity, and behavior in the Adolescent Brain Cognitive Development (ABCD) Study®: Moderating role of positive family and school environments, *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging*
- 2021 **Rakesh, D.**¹, Bastin, C.¹, Harrison, B. J., Davey, C. G., Allen, N. B., Muller, S., & Whittle, S. (2021). Feelings of shame and guilt are associated with distinct neural activation in youth. *Biological Psychology*, 159, 108025.

2021	Rakesh, D., Kelly, C., Vijayakumar, N., Zalesky, A., Allen, N. B., & Whittle, S. (2021). Unraveling the consequences of childhood maltreatment: deviations from typical functional neurodevelopment mediate the relationship between maltreatment history and depressive symptoms. <i>Biological Psychiatry: Cognitive Neuroscience and Neuroimaging</i> , 6(3), 329-342
2020	Rakesh, D., Lv, J., Zalesky, A., Allen, N. B., Lubman, D. I., Yücel, M., & Whittle, S. (2021). Altered resting functional connectivity patterns associated with problematic substance use and substance use disorders during adolescence. <i>Journal of Affective Disorders</i> , 279, 599-608.
2020	Rakesh, D.¹ & Díaz-Arteche, C. ¹ (2020). Using neuroimaging to predict brain age: insights into typical and atypical development and risk for psychopathology. <i>Journal of Neurophysiology</i> , 124(2), 400-403.
2020	Pozzi, E. ¹ , Vijayakumar, N. ¹ , Rakesh, D. , & Whittle, S. (2021). Neural Correlates of Emotion Regulation in Adolescents and Emerging Adults: A Meta-analytic Study. <i>Biological Psychiatry</i> , 89(2), 194-204.
2020	Rakesh, D., Allen, N. B., & Whittle, S. (2020). Balancing act: Neural correlates of affect dysregulation in youth depression and substance use-A systematic review of functional neuroimaging studies. <i>Developmental cognitive neuroscience</i> , 42, 100775.
2020	Rakesh, D., Fernando, K. B., & Mansour L, S. (2020). Functional dedifferentiation of the brain during healthy aging. <i>Journal of neurophysiology</i> , 123(4), 1279-1282.
2019	Cabanas, M., Pistono, C., Puygrenier, L., Rakesh, D. , Jeantet, Y., Garret, M., & Cho, Y. H. (2019). Neurophysiological and behavioral effects of anti-orexinergic treatments in a mouse model of Huntington's disease. <i>Neurotherapeutics</i> , 16(3), 784-796.
2019	Cabanas, M., Piquemal, M., Pistono, C., Arnaud, S., Rakesh, D. , Poinama, E., ... & Cho, Y. H. (2020). Correlations between mutant huntingtin aggregates and behavioral changes in R6/1 mice. <i>Journal of Huntington's disease</i> , 9(1), 33-45.

¹Co-first authors

MANUSCRIPTS IN PREPARATION

2022	Rakesh, D., Flournoy, J., McLaughlin, K. Different socioeconomic status indicators and mental health trajectories during early adolescence
2022	Rakesh, D., Whittle, S., Sheridan, M., McLaughlin, K. Socioeconomic status and the pace of neurodevelopment: accelerated, delayed, or altogether different?
2022	Rakesh, D., Lee, P., McLaughlin, K. Associations between socioeconomic status and cognitive function and academic achievement during childhood and adolescence – a systematic review of mechanisms and buffering factors
2022	Flournoy, J., Rakesh, D. , Byrne, M. Exclusions threaten inference in ABCD
2022	Mygind, L., Rakesh, D. , Allen, N. B., Vijayakumar, N., Youssef, G., Enticott, P.G., & Whittle, S. Associations Between Residential Greenness, Neurodevelopment, and Emotion Regulation in Adolescence [registered report in preparation]

RESEARCH FELLOWSHIPS AND SCHOLARSHIPS

May 2022	Flux Travel Award (\$750), awarded to talented students based on scientific merit and an evaluation of a written application
Oct 2018 to Apr 2022	Melbourne Research Scholarship (\$70,000p.a. * 3.5 years) - full fee remission of \$39,000p.a. + \$31,000p.a. living allowance). Awarded to high achieving PhD students.
Oct 2018 to Oct 2021	Nick Christopher Scholarship (\$18000) , awarded by the University of Melbourne to the two highest ranked incoming PhD students in the Melbourne Medical School
Dec 2020	Society for Biological Psychiatry (SOBP) Predoctoral Travel Fellowship (\$2000 stipend + waived registration fees for three years). International fellowship awarded based on past excellence in scholarly work, potential for scholarly growth in biological psychiatry and clinical neuroscience, and overall excellence.

Feb 2020	Graham Burrows Travel Scholarship (\$4500) , awarded by the University of Melbourne to one student annually for research related travel.
Nov 2018	Rowden White Scholarship (\$6500) , awarded annually by the University of Melbourne to a few talented, high quality PhD students.
May 2018	Trinity College Dublin PhD Studentship Award (€21,000p.a. * 3 years) - full fee remission of €14,500p.a. + €6500p.a. living allowance). Awarded to high achieving PhD students *Declined in order to accept the Melbourne Research Scholarship

HONOURS AND AWARDS

Nov 2022	Dean's Award for Excellence in Graduate Research (awarded to recognise outstanding achievements by Graduate Researchers, University of Melbourne; \$1000)
Jun 2022	Flux Dissertation Award (awarded annually to one person to recognise an exceptional, rigorous, and meticulous dissertation by one of the Flux Societies trainee members)
Apr 2022	Finalist - Schmidt Science Fellowship (finalist amongst a group of highly accomplished candidates, nominated from 83 of the world's leading universities and research institutes, and recognized by University of Melbourne as one of their most promising PhD students)
Feb 2022	Best Paper Award (PhD Student - Basic Science Category; \$1000 + free registration and membership), Society for Mental Health Research (SMHR)
Dec 2021	Mendelsohn Neuroscience Thesis Prize (Second Runner-up), Awarded annually to outstanding doctoral students in the Neurosciences, University of Melbourne
Sep 2021	Student & Early Career Researcher Excellence Plenary , Biological Psychiatry Australia for outstanding achievement in biological psychiatry research and significant contribution to scientific leadership and outreach
June 2021	People's Choice Award , Australian Society for Social and Affective Neuroscience (AS4SAN) annual YouTube competition
Dec 2020	Best Oral Presentation Award , Department of Psychiatry Annual Research Symposium, University of Melbourne
Dec 2020	Best Abstract Award , Mental Health PhD Program Annual Conference, University of Melbourne
Sep 2020	Velma Stanley Award for paper entitled 'Altered whole-brain functional connectivity patterns associated with substance use disorders and problematic substance use during adolescence'. Awarded annually by the University of Melbourne to one person for an essay/paper on substance use (\$2500).
Oct 2019	Best Poster Presentation Award , Biological Psychiatry Australia, 2019
Aug 2019	Best Poster Presentation Award , Department of Psychiatry Annual Research Symposium, University of Melbourne
Jun 2018	Ranked 1st in the program - Masters by Research, Neuroscience
Jun 2018	Best Oral Presentation Award at 'International Scientific Day', the annual student symposium (organised by the Neuroscience in Bordeaux Association)

SELECTED INVITED CONFERENCE TALKS

Dec 2022	Centre for Educational Neuroscience Seminar Series
Sep 2022	Flux Dissertation Award Talk Invited Talk at FLUX Congress 2022
Dec 2021	Oral Presentation , Department of Psychiatry Annual Symposium
Oct 2021	Keynote: Student and ECR Excellence Plenary , Biological Psychiatry Australia
Jun 2021	Invited to lead a workshop on functional connectivity methods at AS4SAN (Australian Society for Social and Affective Neuroscience)
Jun 2021	Symposium presentation at Biological Psychiatry Australia Virtual Symposia Series
Jun 2021	Oral presentation at AS4SAN (Australian Society for Social and Affective Neuroscience)
Dec 2020	Oral presentation at Graduate Research Conference , University of Melbourne

Dec 2020	Oral presentation at the Mental Health PhD Program Annual Conference , University of Melbourne
Nov 2020	Oral presentation at Department of Psychiatry Annual Symposium (awarded Best Presentation)
Oct 2020	Oral presentation at Biological Psychiatry Australia (BPA)
Sep 2020	Oral presentation at Flux Congress
Nov 2019	Symposium presentation at Society for Mental Health Research (SMHR)
Oct 2019	Symposium presentation at Australian Cognitive Neuroscience Society (ACNS)
Oct 2019	Oral presentation at Students of Brain Research Annual Symposium (SOBR)
May 2018	Oral presentation, International Scientific Day, annual symposium, Neuroscience in Bordeaux Association (awarded Best Presentation)

*Only talks where I was the presenter have been listed.

SELECTED POSTER PRESENTATIONS

Apr 2022	Poster Presentation at Society for Biological Psychiatry (SOBP)
Apr 2021	Poster Presentation at Society for Biological Psychiatry (SOBP)
Sep 2021	Poster Presentation at Flux Congress
Jun 2020	Poster Presentation at Organization for Human Brain Mapping (OHBM)
Oct 2019	Poster presentation at Biological Psychiatry Australia (awarded Best Poster)
Aug 2019	Poster presentation at The University of Melbourne Psychiatry Symposium (awarded Best Poster)
May 2017	Poster presentation at NeuroFrance 2017

*Only posters where I was the presenter have been listed.

TEACHING AND SUPERVISION

PhD and/or Honours Thesis advisor

* Received an award for their Thesis and/or research and extracurricular work

2022 to present	Supervisor of PhD Candidate , Lu Zhang* (awarded the Nick Christopher Scholarship for high-ranking PhD students)
2021	Supervisor of year-long honours research projects (student: Reham Elzeiny*; awarded the Department of Psychiatry Honours Award) on the association between adversity, brain development, and mental health
2021	Supervisor of year-long honours research projects (student: Chrysoula Tsiapas) on the association between adversity, brain development, and mental health
2019	Supervisor of year-long honours research project on examining aberrations in whole-brain functional connectivity in subclinical psychosis (student: Kavisha Fernando*; awarded the Department of Psychiatry Honours Award)
2019	Supervisor of 6-month Master's thesis on the neural correlates of guilt and shame (student: Fenna Mensonides), University of Melbourne

Teaching Experience

Sem 2, 2021	Teaching Associate , Melbourne School of Psychological Sciences, University of Melbourne, Course: Cognitive Psychology
Sem 1, 2021	Teaching Associate , Melbourne School of Psychological Sciences, University of Melbourne, Course: Biological Psychology
Sem 2, 2020	Teaching Associate , Melbourne School of Psychological Sciences, University of Melbourne, Course: Cognitive Psychology
Sem 1, 2020	Teaching Associate , Melbourne School of Psychological Sciences, University of Melbourne, Course: Biological Psychology
Sem 2, 2019	Teaching Associate , Melbourne School of Psychological Sciences, University of Melbourne, Course: Cognitive Psychology

MEDIA AND PUBLIC OUTREACH

2022	Article in 'The Conversation' , <u>Research suggests one way to prevent depression and anxiety is a strong sense of connection at high school</u>
2022	Article in the Medical Journal of Australia , Insight+, <u>Disadvantage and Brain Development: flags for GPs</u>
2022	[under review] Article for Frontiers for Young Minds - 'How the neighborhoods we grow up in shape our brains, and why home and school environments matter'
2022	Article in 'The Mental Elf' : <u>School connectedness, anxiety and depression: recent evidence and young people's perspectives</u>
2021	Press release by Biological Psychiatry: CNNI
2021	Radio Interview: 3CR (Radical Philosophy), <i>'Shaping children's brains'</i>
2021	Article in 'The Conversation' , <u>Growing up in a rough neighbourhood can reshape kids' brains – but good parenting and schooling can help</u> (> 24,000 reads)
2021	Radio Interview: RRR 102.7FM , Featured on Einstein a go-go's 20PhDs20Minutes
2020	News Article , Pursuit Magazine, <u>"The Legacy of Maltreatment on the Brain"</u>

CONTRIBUTION TO PEER-REVIEW

2020 to present	Peer reviewed articles for several Q1 journals : <ul style="list-style-type: none">» Biological Psychiatry» Biological Psychiatry: CNNI» Psychological Medicine» Neuroimage Clinical» Developmental Cognitive Neuroscience» Developmental Psychobiology» Health and Place» Risk Management and Healthcare Policy» European Journal of Neuroscience» Schizophrenia Bulletin» Development and Psychopathology
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PROFESSIONAL EXPERIENCE

Nov 2015 to Aug 2016	Manager - Marketing , Nykaa, Mumbai <ul style="list-style-type: none">» Analysing market research data and digital consumer behaviour» Launch of the Nykaa private label and formulating the IMC
Jul 2013 to Nov 2015	Assistant Manager - Marketing , L'Oréal <ul style="list-style-type: none">» Responsible for all brand growth targets and brand financials for Vichy, India» Understanding and analysing market research data» Conducted consumer panels, focus group discussions and other research to derive consumer insights» Designed and implemented a 360° Integrated Marketing Campaign

LEADERSHIP POSITIONS

2023	Chair, Flux Trainee Committee
2022	Flux Trainee Committee member <ul style="list-style-type: none">» Organised and moderated a panel discussion on grant/fellowship writing at Flux Congress 2022» Assisting with other trainee events and concerns
2022 to 2023	Flux Diversity and Inclusion Committee member
2021	BrainHack 2021 , Social Committee

2022	Higher Degree by Research Course Review Panel Member , University of Melbourne
2021 to present	Department of Psychiatry Research Committee member , University of Melbourne
2020-2022	Academic Board's Higher Degrees by Research Committee member - member of a senior university committee that makes decisions on HDRs, University of Melbourne
2019 to 2020	Academic Board's Academic Programs Committee member - member of a senior university committee that makes decisions on academic programs, University of Melbourne
2019 to 2020	Executive Committee Member , Students of Neuropsychiatry Research (SONR) graduate group, University of Melbourne
2011 to 2013	Senior Editor and President , Literary Committee, MICA, Ahmedabad, India
2010 to 2011	Vice President , English Debating Society, SVC, University of Delhi Editor in Chief , Science Magazine, 'Expressions', SVC, University of Delhi

EXTRA-CURRICULAR ACTIVITIES

Internships and Volunteer Work

July 2017 to Aug 2017	Intern , with Dr. Anil Kumar (M.D. Psychiatry) » Assisted in conducting clinical assessments acquiring patient history
Dec 2014 to Apr 2015	Mentor , Green Batti Project, Mumbai » Mentored children from underprivileged backgrounds through academic and personal difficulties
Apr 2012 to Jun 2012	Intern , L'Oréal, Mumbai » Studied online behaviour of L'Oréal consumers in order to devise marketing strategies
May 2009	Intern , C.A.R.E (Cooperative for Assistance and Relief Everywhere) » Rural health initiative to implement the Integrated Child Development Scheme (ICDS), a centrally sponsored scheme to ensure proper growth and development of children in rural, tribal and slum areas of rural Jharkhand, India.
June 2009	Rural auditor , M.N.R.E.G.A under Jean Dreze » Raised awareness about 'Right to Employment', minimum wage and the Mahatma Gandhi National Rural Employment Guarantee Act, and audited the scheme's implementation while living in rural Jharkhand, India

Skills

MATLAB, Python, R, Microsoft Excel, Prism, Adobe Illustrator, Adobe Indesign, Adobe Lightroom

Interests and Activities

Portrait photography, debating, writing poetry, yoga, mridangam, bird-watching, reading, handball, Carnatic vocals

Languages

English (native), Hindi (native), French (B2), Bengali (B1), Urdu (B2)