

# Ananthan Ambikairajah

Neuroscientist. Teacher. Science Communicator.

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## CAREER OBJECTIVE

I am a hardworking, ambitious and self-motivated neuroscientist, educator and science communicator. My key strengths and proven track record are in conducting and publishing high quality research, either as a member of a team or independently, in addition to enhancing student motivation and engagement to promote positive learning outcomes. My career objective is to work within academia, which would provide me with the ideal platform to combine my passions for research, teaching and science communication, as well as enriched opportunities to become a life-long learner and collaborate with leading researchers, organisations and institutions, to ensure that I can also contribute to and have a positive impact on society.

## EDUCATION

**Doctor of Philosophy (PhD) in Neuroscience** 2018 to date

*Australian National University - Research School of Population Health*

**Master of Teaching (Secondary) Science Double Method Specialisation** 2016 - 2017

*University of New South Wales - School of Education*

Weighted Average Mark (WAM): 85.78 (High Distinction Average)

**Bachelor of Science (Neuroscience)** 2012 - 2015

*University of New South Wales - School of Medical Science*

Weighted Average Mark (WAM): 75.81 (Distinction Average)

## PUBLICATIONS

**Ambikairajah, A.**, Tabatabaei-Jafari, H., Walsh, E., Hornberger, M., & Cherbuin, N. (2020). Longitudinal changes in fat mass and the hippocampus. *Obesity*. doi:10.1002/oby.22819

**Ambikairajah, A.**, Ambikairajah, R., & Ambikairajah, E. (2019). The impact of improving feelings of relatedness on motivation and engagement for tertiary students. *International Journal of Mathematical Education in Science and Technology*, 1-10. doi:10.1080/0020739X.2019.1703149

**Ambikairajah, A.**, Walsh, E., & Cherbuin, N. (2019). Lipid profile differences during menopause: a review with meta-analysis. *Menopause*, 26(11), 1327-1333. doi:10.1097/GME.0000000000001403

**Ambikairajah, A.**, Walsh, E., Tabatabaei-Jafari, H., & Cherbuin, N. (2019). Fat mass changes during menopause: a meta-analysis. *American Journal of Obstetrics & Gynecology*, 221(5), 393-409.e50. doi:10.1016/j.ajog.2019.04.023

**Ambikairajah, A.**, & Tisdell, C. C. (2019). E-Examinations and the Student Experience Regarding Appropriateness of Assessment and Course Quality in Science and Medical Science. *Journal of Educational Technology Systems*, 47(4), 460-478. doi:10.1177/0047239518822016

Low, J. K., **Ambikairajah, A.**, Shang, K., Brown, D. A., Tsai, V. W., Breit, S. N., & Karl, T. (2017). First behavioural characterisation of a knockout mouse model for the transforming growth factor (TGF)- $\beta$  superfamily cytokine, MIC-1/GDF15. *PloS one*, 12(1), e0168416. doi:10.1371/journal.pone.0168416

**Ambikairajah, A.**, Devenney, E., Flanagan, E., Yew, B., Mioshi, E., Kiernan, M. C., Hodges, J. R., & Hornberger, M. (2014). A visual MRI atrophy rating scale for the amyotrophic lateral sclerosis-frontotemporal dementia continuum. *Amyotrophic Lateral Sclerosis and Frontotemporal Degeneration*, 15(3-4), 226-234. doi:10.3109/21678421.2014.880180

## CONFERENCE PRESENTATIONS, ABSTRACT AND POSTER PUBLICATIONS

**Ambikairajah A.** (2018). Being Courageous: Exploring new approaches to improve and expand learning experiences - "A Practical Framework for Courageousness in Teaching". Presentation accepted for the *Learning and Teaching Forum, Partners in Learning: Connecting Communities*, University of New South Wales, Australia.

**Ambikairajah A., Tisdell C.** (2018) The Effects of E-Examinations on Student Satisfaction Regarding Appropriateness of Assessment and Course Quality in Science and Medical Science. Presentation accepted for the *International Mobile Learning Festival, Mobile Learning, STEM and Transdisciplinary Education*, Singapore.

**Ambikairajah A.** (2017). Inspired Learning by Inspired Teaching - "Quality student relationships can predict excellence in learning and teaching". Presentation accepted for the *Learning and Teaching Forum, Educational Excellence: Transforming Futures*, University of New South Wales, Australia.

**Ambikairajah A., Tisdell C.** (2016). Changing how we think about teaching - A reflection of the Pilot Active Learning Spaces (PALS) initiative. Abstract accepted for the *Learning and Teaching Forum, Towards 2025: Inspiring Learning*, University of New South Wales, Australia.

## THESIS SUPERVISION

### MASTERS

**Tergel Namsrai** - Co-supervisor

2020 to date

*Australian National University*

## SCHOLARSHIPS AND AWARDS

**Complex Human Data Summer School Scholarship**

2019

*University of Melbourne*

The Complex Human Data Summer School (CHDSS) Scholarship was a one off payment, valued at \$500, which covered the cost of travel and/or accommodation. Across 6 consecutive days, the CHDSS covered topics that included programming in R, reproducibility and open science, GitHub, bayesian data analysis, best practices for running online studies, experience sampling, probabilistic models of cognition, exploratory data analysis and generalised linear models.

**Research to Impact Scholarship**

2018

*Canberra Innovation Network*

The Research to Impact Scholarship was a one off payment, valued at \$2000, which covered the cost of 4 half-day workshops that covered areas such as (1) innovation essentials and finding market need, (2) Value propositions for big impact, (3) Business models, value chain and collaboration and (4) Pitching for outcomes and building your pitch-deck. In addition to this, the program involved intensive self-study before each workshop and a one on one follow up session.

**Australian Government Research Training Program Domestic Scholarship**

2018 - 2021

*Australian National University*

The Australian Government Research Training Program (AGRTP) Domestic Scholarship was a fortnightly payment leading to a sum of \$83 946, over 3 years. The AGRTP Fee-Offset Scholarship covers the full tuition fees for 3 years.

### **Dean's List for Academic Excellence**

2017

*University of New South Wales - Faculty of Arts and Social Sciences*

The Dean's List for Academic Excellence is awarded to students that have maintained a High Distinction Weighted Average Mark (WAM).

## **PROFESSIONAL EXPERIENCE IN RESEARCH**

### **Researcher for Burns Group**

2020

*Australian National University - Centre for Research on Ageing, Health and Wellbeing*

With Dr Richard Burns, my role was to work conduct a literature review for a consultancy report for *Exhale*, which focused on domains related to mental and physical health and wellbeing. In this role I was responsible for:

- Conducting a literature review on domains related to health and wellbeing.
- Writing a report that explained the findings of the review in a digestible and understandable way to a non-scientific audience.

### **Researcher for Cherbuin Group**

2017 to date

*Australian National University - Neuroimaging Brain Lab (NIMBL)*

With Professor Nicolas Cherbuin, my role was to work collaboratively with a team on a systematic review and meta-analysis, which investigated the effect of Body Mass Index (BMI) on brain volume. This project allowed me to develop fundamental research skills required by a first year PhD student, including:

- Collating papers through a systematic search of online databases.
- Conducting title, abstract and full text screening.
- Extracting and analysing data, using the statistical package, R.

### **Researcher for Tisdell Group**

2016

*University of New South Wales - Science Learning and Teaching Unit*

With Professor Chris Tisdell, my role was to conduct self-directed work on a pre-established education project, which investigated the effectiveness of electronic examinations on the student learning experience. This project led to a first-author paper publication. In this role, I was responsible for:

- Analysing the data.
- Writing a manuscript for the research project.

### **Research Volunteer for Piguet Group**

2014 - 2015

*Neuroscience Research Australia - Neurodegenerative Diseases*

My work with Professor Olivier Piguet enabled me to develop my research skills and knowledge of frontotemporal dementia (FTD). In this role, I worked with the Piguet Group on a number of research projects for my Bachelor of Science (Neuroscience) degree, which allowed me to:

- Conduct literature reviews and obtain quality feedback on my writing skills.
- Engage in personalised meetings and develop from professional mentorship, which helped further my understanding of dementia research and brain imaging techniques, such as Voxel-Based Morphometry (VBM) and develop experience with the grant writing process.
- Work in a collaborative team environment, attend group meetings and contribute to academic discussions.
- Gain exposure in utilising a wide array of research techniques and statistical methods for analysis of behavioural and imaging data.

### **Research Volunteer for Karl Group**

2013

*Neuroscience Research Australia - Mental Health*

With Professor Tim Karl, my role was to work collaboratively on a 3 month intensive animal research project, which investigated the role of MIC-1/GDF15 on behavioural domains of male and female knock-out mice including locomotion, exploration, anxiety, cognition, social behaviours and sensorimotor gating. This project led to a paper publication. In this role, I was responsible for:

- Completing an animal care and ethics course at UNSW, which I obtained a mark of 94% (High Distinction).
- Appropriate, careful and safe handling and care of the mice, to ensure minimal pain and distress.
- Conducting behavioural research on mice including tests such as the elevated plus maze, open field test, continuous spontaneous alternation in the Y-maze, social interaction test, fear conditioning and the prepulse inhibition test.
- Recording behavioural data from all experiments.
- Conducting formal analysis on the collected data, using the statistical software package, SPSS.

### **Research Volunteer for Hornberger Group**

2012

*Neuroscience Research Australia - Neurodegenerative Diseases*

My work with Professor Michael Hornberger was initially intended to be a learning experience, however, due to my strong work ethic and eagerness to learn, I was encouraged to work on a research project, which investigated the use of a novel visual rating scale that would help clinicians reliably distinguish between ALS, ALS-FTD and bvFTD atrophy patterns on an MRI scan. This project led to a first-author paper publication. In this role, I was responsible for:

- Undertaking self-directed reading and reviewing of the literature.
- Viewing coronal MRI scans and implementing the rating scale to assess different regions of the brain.
- Collaborating with collaborators to analyse and interpret the results.
- Writing a manuscript for the research project.
- Working with research collaborators to address reviewer comments on the paper.

## **PROFESSIONAL EXPERIENCE IN PRESENTING/COMMUNICATION**

### **Podcast Presenter**

2018 to date

*Midnight Conversations*

Midnight Conversations was a podcast that discussed published, peer-reviewed scientific papers in an understandable and engaging way. The primary aim of the podcast was to foster a public interest in current scientific research to promote public engagement and provide a forum for critical and productive scientific discourse. In this role I was responsible for:

- Discussing scientific papers in an interesting and understandable way by highlighting the relevance and importance of key findings.
- Editing the podcast.
- Managing the operations of social media channels for the podcast.

### **Science Communicator**

2015

*Neuroscience Research Australia*

My neuroscience background, combined with my writing and presenting skills enabled me to be successfully employed as a science communicator at Neuroscience Research Australia (NeuRA). In this role, I was responsible for:

- Translating technical scientific research into easily digestible information for media organisations and the general public.
- Establishing strong professional relationships and openly communicating with various media outlets and journalists to promote research conducted at NeuRA.

- Writing media releases, magazine articles and blog posts to create public traction for research.
- Creating engaging podcasts to enhance public interest in neuroscience research.
- Creating video content to explain key neuroscience research areas to the public.
- Providing intensive training sessions for scientists, to help them explain their research to the public.
- Writing quarterly board reports for relevant stakeholders.

### **Marketing Director**

2014

*Warrane College's The Big Picture Program*

The Big Picture Program is a 5 day camp, which helps students shape their professional and personal direction in life. Due to my passion for mentoring students and longstanding involvement as a volunteer for the program, I was asked to be the director of marketing in 2014. My contributions included:

- Identifying specific areas of weakness in the marketing strategies for the program, and creating a core team of expertise to specifically focus on and address these limitations.
- Enhancing student outreach by speaking at a large number of schools across NSW and ACT. This initiative, in addition to other strategies, led to a three-fold increase in the number of enrollments from the previous year (i.e. from 20 to 60 students), which was the largest intake the program had experienced.
- Establishing strong professional connections with businesses, entrepreneurial companies and universities in NSW, to provide students with educational experiences including, guest lectures, engineering and science demonstrations and campus tours.

### **Science Student Ambassador**

2013 - 2016

*University of New South Wales - Faculty of Science*

As a science student ambassador, I was actively involved in outreach to high school and primary school students to stimulate engagement and interest in science. Due to my experience in presenting and public speaking, my responsibilities included:

- Teaching primary and high school students about science.
- Interviewing scientists for UNSW's video content.
- Speaking at public events for the science faculty.
- Being outsourced as a presenter for the centralised university outreach division, which resulted in ad-hoc presenting roles and guest speaking invitations at public events, both on and off campus.

### **Radio Show Host for The Pod**

2013

*Arc at University of New South Wales*

The Pod was a campus radio show at UNSW. In this role I was responsible for:

- Creating engaging and entertaining podcasts for students.
- Writing interview questions and hosting the show.
- Organising guests for the show, including Australian comedians such as Wil Anderson, Fiona O'Loughlin and Sammy J.
- Editing the podcast.
- Managing a volunteer base of students.

## **PROFESSIONAL EXPERIENCE IN TEACHING (UNIVERSITY)**

### **Teacher and Developer - Software, Data and Library Carpentry**

2020 to date

*The Carpentries*

In this role, I was responsible for:

- Teaching R, shell, Git and software engineering skills to scientists and engineers at bootcamps and online sessions.
- Developing new instructional content.

- Developing and maintaining The Carpentries GitHub repositories.

**Teacher and Coordinator - CRAHW R Statistics Workshops**

2019 to date

*Australian National University - Centre for Research on Ageing, Health and Wellbeing*

In this role, I was responsible for:

- Developing and delivering high quality, engaging workshops about linear/generalised linear models to PhD candidates and early career researchers.
- Developing practice questions using R code.
- Administrative tasks necessary for the successful operations of the course.

**Teacher - Statistics Workshops in R**

2019 to date

*Australian National University - Biological Data Science Institute*

In this role, I was responsible for:

- Developing and delivering high quality, engaging workshops about linear/generalised linear models, linear mixed models, model selection, graphing, R Markdown and GitHub to PhD candidates and early career researchers.
- Designing the curriculum.

**Sessional Teacher - POPH8919: Life Course Approaches to Human Ageing**

2018 to date

*Australian National University - Research School of Population Health*

In this role, I was responsible for:

- Developing and delivering high quality, engaging lectures and tutorials to students.
- Designing assessment tasks.
- Marking assessment tasks and providing prompt, valuable and insightful feedback.

**Sessional Teacher - 1st and 2nd year Doctor of Medicine and Surgery degree**

2018 to date

*Australian National University - Centre for Research on Ageing, Health and Wellbeing*

In this role, I was responsible for:

- Delivering high quality, engaging problem based learning tutorials to students.
- Teaching fundamental statistical concepts in an interesting, relevant and understandable way.

**Convenor and Sessional Science Teacher - ANUC1107: Logic and Critical Reasoning**

2017

*Australian National University College*

In this role, I was responsible for:

- Developing and delivering high quality, engaging lectures and tutorials to students.
- Designing and implementing assessment tasks, including assignments and final exam papers.
- Marking assessment tasks and providing prompt, valuable and insightful feedback.
- Addressing student concerns and issues.

**Sessional Teacher - SCIF1121: Professional Perspective and Practice**

2016 - 2017

*University of New South Wales - Science Learning and Teaching Unit*

I have been consistently rated highly by students on feedback questionnaires, including CATEI and My-Experience (reports available upon request), with an average score of 5.83 out of 6 for all assessment categories. In this role, I was responsible for:

- Delivering high quality, engaging tutorials to students.
- Implementing innovative teaching strategies to enhance student-learning experience.
- Collaborating with faculty members, to shape the design of the course, based on student feedback.
- Addressing student concerns and issues.

- Conducting analysis on teaching practices, which have led to conference presentations.

**Casual Science Teacher - Biology**

2015 - 2016

*University of New South Wales Global*

In this role, I was responsible for:

- Delivering high quality, engaging tutorials to students.
- Conducting laboratory demonstrations.

**PROFESSIONAL EXPERIENCE IN TEACHING (HIGH SCHOOL)**

**Science Teacher (PE2 Placement - 9 Weeks)**

2016

*South Sydney High School*

At South Sydney High School, I taught a range of students (including Year 8, 10 and 12), from varying socioeconomic backgrounds. These challenges enabled me to 1) adapt my teaching style to match the students' learning needs and 2) implement innovative teaching strategies to engage students in science. Two detailed reports of my performance on this placement are available, upon request. An overview of my contributions to the school include:

- Designing lesson plans and delivering high quality, engaging lessons.
- Organising and developing an engineering workshop for Year 8 students.
- Contributing to the development of an action research project, which incorporated online quizzes and examinations for student assessment tasks and formative learning activities.
- Setting high behavioural expectations and implementing effective classroom management techniques and strategies to facilitate a productive learning environment for students.
- Contributing to student mentoring programs.

**Science Teacher (PE1 Placement - 4 Weeks)**

2016

*Randwick Girls High School*

At Randwick Girls High School, I taught a Year 11 class and a special needs Year 8 class. A detailed report of my performance on this placement is available, upon request. An overview of my contributions to the school include:

- Designing lesson plans and delivering high quality, engaging lessons.
- Implementing weekly quizzes, to enhance student feedback and learning.
- Incorporating differentiation into the classroom, to address the learning needs of students.

**Sessional Science Teacher**

2014 - 2017

*Matrix Education*

At Matrix Education, I have primarily taught Biology for Year 12 students. I have helped students develop and implement effective learning strategies, which have enabled them to achieve success in their Higher School Certificate (HSC). In this role, I was responsible for:

- Designing lesson plans and delivering high quality, engaging lessons.
- Marking student quizzes, to provide detailed feedback.
- Consulting with the CEO on the operations and educational initiatives within the faculty of science.

**PROFESSIONAL EXPERIENCE WITH COMMITTEES**

**IARU Research Meeting - Organising Committee Member**

2019

*International Alliance of Research Universities*

**RSPH Strategic Plan - Beneficiaries Working Group Member**

2019

*Australian National University - Research School of Population Health*

<b>Postgraduate Research Student Committee - Deputy Chair</b>	2019
<i>Australian National University - Research School of Population Health</i>	
<b>Postgraduate Research Student Committee - Student Representative</b>	2018
<i>Australian National University - Research School of Population Health</i>	
<b>Learning and Teaching Committee - Postgraduate Student Representative</b>	2016 - 2017
<i>University of New South Wales</i>	
<b>Student Representative for PHAR3202: Neuropharmacology</b>	2014
<i>University of New South Wales</i>	
<b>Senior Prefect</b>	2011
<i>Sydney Technical High School</i>	
<b>ACCREDITATION/PROFESSIONAL DEVELOPMENT</b>	
<b>Complex Human Data Summer School Scholarship</b>	2019
<i>University of Melbourne</i>	
<b>ANU Graduate Short Course Award in Science Communication</b>	2018
<i>Australian National University - Centre for The Public Awareness of Science</i>	
<b>Research to Impact Program</b>	2018
<i>Canberra Innovation Network</i>	
<b>Working with Vulnerable People - General Registration</b>	2017 - 2020
<i>ACT</i>	
<b>Working with Children Check for Paid and Unpaid Roles</b>	2018 - 2023
<i>NSW</i>	
<b>Literacy and Numeracy Test for Initial Education Students</b>	2016
<i>Australian Council for Educational Research</i>	
<b>Anaphylaxis Training</b>	2016
<i>Australasian Society of Clinical Immunology and Allergy</i>	
<b>Diploma of Educational Studies</b>	2013
<i>College of Teachers, London</i>	
<b>Animal Care and Ethics Course</b>	2013
<i>University of New South Wales</i>	
<b>SOCIAL RESPONSIBILITY</b>	
<b>Memory Walk and Jog</b>	2020 to date
<i>Dementia Australia</i>	
<b>Founder of the Big Brother Scholarship</b>	2018 to date
<i>Sydney Technical High School</i>	
<b>Shirty Science with Canberra Girls Grammar</b>	2018
<i>Shirty Science</i>	



**Youth STEM Conference** 2018  
*Centre for Innovation and Learning*

**Science Peer Mentor** 2015  
*University of New South Wales*

**Ambassador and Mentor** 2012 to 2017  
*Warrane College's The Big Picture Program*

**Sri Lanka Work Camp Volunteer** 2012  
*Warrane College*

**Volunteer** 2011 to 2017  
*Room to Read*

## **OTHER INTERESTS**

**Motivational Speaker** 2013 to date

**Performing Stand-up Comedian** 2013 to date

**Bamboo Flautist** 2001 to date

**Tennis Player** 1999 to date

## **REFEREES**

Provided on request