

# William Xiang Quan Ngiam

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## Education and Training

- 2019 – present    **Postdoctoral Research Scholar**  
University of Chicago (with Professors Edward Awh and Edward Vogel)
- 2015 – 2019    **Doctor of Philosophy** in Psychology  
University of Sydney (Supervised by Professor Alex Holcombe)
- 2011 – 2014    **Bachelor of Psychology (Honours)**  
University of Sydney (Supervised by Dr Patrick Goodbourn)

## Research Experience

- 2017    **Statistical Assistant/Programmer**  
University of Sydney Educational Innovation Grant; *Using interactive learning to integrate statistical theory with contemporary research practices*
- 2017 – 2018    **Research Assistant**  
University of Sydney Faculty of Science Seed Funding; *The development of attentional control in children with and without anxiety*

## Teaching Experience

- 2023    **Invited Lecturer** on working memory for Introduction to Learning and Memory, *University of Chicago*
- 2022    **Invited Lecturer** on the credibility revolution for Introduction to Social Psychology, *University of Chicago*
- 2018    **Lecturer (Summer School)** for Science and Statistics in Psychology - Introduction to Psychology, *University of Sydney*
- 2015 – 2018    **Tutor** for Statistics and Research Methods for Psychology (2<sup>nd</sup> year undergraduate psychology course), *University of Sydney*
- 2015, 2017    **Tutor** for Advanced Statistics for Psychology (3<sup>rd</sup> year undergraduate psychology course), *University of Sydney*
- 2016    **Tutor** for Research Methods in Honours Psychology (4<sup>th</sup> year Honours psychology course), *University of Sydney*

## Service

- 2021– 2023    **Organizer** of the Working Memory Symposium conference.
- 2020 – present    **Founder and Organizer** of the University of Chicago ReproducibiliTea Journal Club
- 2021 – present    **Steering Committee** member of ReproducibiliTea
- 2022 – present    **Editor-in-Chief** of the Journal for Reproducibility in Neuroscience

## Honours and Awards

- 2022    **Research Rigor Champion** – *National Institutes of Health (United States)*
- 2015 – 2019    **Research Training Program (RTP) Award** – *Australian Government Department of Education and Training*
- 2015 – 2019    **Academic Merit Award** – *University of Sydney*
- 2017    **PsychFEST Award** for Excellent Presentation – *University of Sydney*

2016 **Endeavour Research Fellowship** – Australian Government Department of Education and Training

2014 **APS Prize** – Australian Psychological Society

## **Publications**

**Ngiam, W.X.Q.**, Loetscher, K.B., Vogel, E.K., Awh, E. (2023). Object-based encoding constrains storage in visual working memory. *Journal of Experimental Psychology: General*.

<https://doi.org/10.1037/xge0001479>

**Ngiam, W.X.Q.** (2023). Mapping visual working memory models to a theoretical framework. *Psychonomic Bulletin & Review*. <https://doi.org/10.3758/s13423-023-02356-5>

**Ngiam, W.X.Q.**, Foster, J.J., Adam, K.C.S., Awh, E. (2022). Distinguishing guesses from fuzzy memories: Further evidence for item limits in visual working memory. *Attention, Perception, & Psychophysics*. <https://doi.org/10.3758/s13414-022-02631-y>

**Ngiam, W.X.Q.** (2021). Fully Credited: Making Publishing More Equitable. *APS Observer*, 35.

**Ngiam, W.X.Q.**, Adam, K.C.S., Quirk, C., Vogel, E.K., Awh, E. (2021). Estimating the statistical power to detect set size effects in contralateral delay activity. *Psychophysiology*, 58:e13791.

<https://doi.org/10.1111/psyp.13791>

**Ngiam, W.X.Q.**, Brissenden, J.A., Awh, E. (2019) "Memory compression" effects in visual working memory are contingent on explicit long-term memory. *Journal of Experimental Psychology: General*, 148(8), 1373. <https://doi.org/10.1037/xge0000649>

**Ngiam, W.X.Q.**, Khaw, K.L.C., Holcombe, A.O., Goodbourn, P.T. (2019). Visual working memory for letters varies with familiarity but not complexity. *Journal of Experimental Psychology: Learning, Memory and Cognition*, 45(10), 1761-1775. <https://doi.org/10.1037/xlm0000682>

Bateman, J.E., **Ngiam, W.X.Q.**, Birney, D. P. (2018). Relational encoding in visual working memory: Change detection performance is better for violations in group relations. *PLOS ONE* 13(9): e0203848. <https://doi.org/10.1371/journal.pone.0203848>

Goodbourn, P.T., Livesey, E.J., **Ngiam, W.X.Q.**, Holcombe, A.O., Forte, J.D. (under review.). Learning new symbolic representations of number.

## **Conference Presentations**

### **Talks**

**Object-based encoding in visual working memory** (2022). *Object Perception, Attention and Memory 30*, satellite of the Annual Meeting of the Psychonomic Society.

**A signature of guessing supports an item limit in visual working memory** (2022). *Working Memory Symposium*.

**Power for detecting the presence of set size differences in the contralateral delay activity.** (2020). *Working Memory Symposium*.

**Training recognition familiarity does not improve visual working memory performance.** (2018) 45<sup>th</sup> Annual Conference of the Australasian Society for Experimental Psychology.

**Enhancing visual working memory performance using statistical regularities requires explicit awareness.** (2017) 44<sup>th</sup> Annual Conference of the Australasian Society for Experimental Psychology, Newcastle, Australia.

### **Posters**

**Evidence for object-based encoding into visual working memory.** (2022) 22<sup>nd</sup> Annual Meeting of the Vision Sciences Society, Florida, United States.

**Item-based storage limits revealed by whole-report for dual-feature stimuli.** (2020) 61<sup>st</sup> Annual Meeting of the Psychonomic Society, online.

**Estimating the statistical power to detect set-size effects in the contralateral delay activity** (2020). *Object, Perception, Attention and Memory*, online.

**Object-based memories revealed by whole-report for dual-feature stimuli.** (2020) 20<sup>th</sup> Annual Meeting of the Vision Sciences Society, online.

**“Memory compression” effects in visual working memory are contingent on explicit long-term memory.** (2019) 60<sup>th</sup> Annual Meeting of the Psychonomic Society, Montreal, Canada.

**Examining the effects of memory compression with contralateral delay activity.** (2019) 19<sup>th</sup> Annual Meeting of the Vision Sciences Society, Florida, United States.

**Training recognition familiarity is insufficient to improve visual working memory.** (2018) 59<sup>th</sup> Annual Meeting of the Psychonomic Society, New Orleans, United States.

**Memory compression using statistical regularities requires explicit awareness.** (2017) 17<sup>th</sup> Annual Meeting of the Vision Sciences Society, Florida, United States.

**Familiarity, but not visual complexity, affects letter encoding in visual working memory.** (2016) 57<sup>th</sup> Annual Meeting of the Psychonomic Society, Boston, United States.

**Encoding and capacity limits of visual working memory are not set by stimulus complexity.** (2015) 42<sup>nd</sup> Annual Conference of the Australasian Society for Experimental Psychology, Sydney, Australia.

### Panels

**Why does science need immediate and substantial reform?** (2022). Brazilian Congress of Pharmacology and Experimental Therapeutics.

**Best practices with preregistration** (2022). Open Science Workshop at 22<sup>nd</sup> Annual Meeting of the Vision Science Society

**Open Science: a vision for a fair and equitable science.** (2021). Equity in Vision Science panel at Object Perception, Attention and Memory 29.

### Invited Talks

**Rethinking the theoretical foundation of visual working memory.** (2023). Visual Cognition seminar, University of California Davis.

**The whole-report on visual working memory.** (2022). Department of Psychology Colloquium, University of New South Wales.

**Improving your research with preregistration.** (2022). ReproducibiliTea, Campus Kulmbach at the University of Bayreuth.

**Give researchers the CRedit they deserve.** (2022). ReproducibiliTea, University of Frankfurt.

**Why Open Science should matter to every researcher today.** (2021). School Research Seminar, University of Newcastle Australia.

**An Introduction to Open Science.** (2021). ReproducibiliTea, University of Missouri.

### Journals Reviewed For

*Psychological Science; Journal of Experimental Psychology: General; Journal of Experimental Psychology: Learning, Memory and Cognition; Journal of Experimental Psychology: Human Perception and Performance; Psychonomic Bulletin & Review; Attention, Perception & Psychophysics; Journal of Cognitive Neuroscience; Psychophysiology; Quarterly Journal of Experimental Psychology; Nature Scientific Reports; Nature Communications Psychology; Memory and Cognition; PLoS One; Psychological Research; Neuroanatomy and Behaviour; Neuroimage; eNeuro; Memory*