# **Acknowledgments**

First, I have to thank those who have taught me the most about the subject. They are my current and former students and mentees, including Brian Mansicalco, Dobromir Rahnev, Ai Koizumi, Liyan McCurdy, Yoshiaki Ko, Jorge Morale, Guillermo Solovey, Megan Peters, Vincent Taschereau-Dumouchel, Brian Odegaard, Aurelio Cortese, JD Knotts, Kiyo Miyoshi, Taylor Webb, Yujia Peng, Cody Cushing, Mouslim Cherkaoui, Raihyung Lee, Cathie So, Ben Rosenberg, and Seong Hah Cho. You'll read about some of their excellent work throughout the book.

Like Angela Clague, Matthias Michel was kind enough to read the drafts of all the chapters in this book, well before they were readable. As usual, his comments have improved the content substantially.

Of course, I also have teachers in a more formal sense. It was Chad Hansen at the University of Hong Kong, my alma mater, who first got me interested in philosophy and academia. Joe Lau at the same institution taught me how to read and write properly and planted the important seed of doubt that abstruse writing is typically anything but profound. At Oxford, Dick Passingham miraculously created a scientist out of an unruly young man.

From there, the line between mentors and friends gets blurry: Chris Frith, Joe LeDoux, Patrick Haggard, David Rosenthal, and Mitsuo Kawato taught me how to be less unwise as an academic (and as a person in general). At UCLA, Michelle Craske kindly supported my foray into clinical studies. Michele Basso and Alicia Izquierdo likewise allowed me to learn about animal models, as a late beginner.

Outside of my own affiliated institutions, Steve Fleming and Richard Brown are both good friends as well as collaborators. Our playing music *very* poorly together provided some probably pathological yet beneficial form of moral support. If nothing else, they convinced me that science, not music, is what I should focus on. Floris de Lange and Tony Ro helped me out when I needed friends to lean on in order to continue doing experiments in neuroscience. Tom Barry and Christian Chan taught me much about clinical psychology, as well as about my own home city.

Dean Mobbs and Sara Bengtsson are likewise both good friends, as well as collaborators, from the days when we all worked together in the same building

in London where my theoretical ideas on consciousness first took shape. We all miss Tom Schofield very much.

There are really too many thanks to give, but I want to highlight a few people with whom I often disagree: Ned Block, Stanislas Dehaene, and Victor Lamme. It's been an utter privilege to learn directly from them. That these eminent colleagues never took intellectual arguments personally and were always willing to engage in a friendly way is what makes working in this field so special. I'm lucky enough to have also had similarly pleasant exchanges recently with Rafi Malach, Marius Usher, and Christof Koch. Although Christof and I hardly ever agree on anything, he promoted my career all the same when I started out.

The actual writing of this book started when I was on leave from UCLA, at the University of Hong Kong. While I finished the first draft back in Los Angeles, some final touches were done at the Riken Institute near Tokyo, where I currently am. I am grateful for the generous support from these three great institutions. The UCLA Library in particular has made possible for this book to be open access.

Besides some of the names already mentioned above, many other people have kindly read and commented on an earlier draft, including: Bryce Heubner, Joey Zhou, Jason Samaha, Nico Silins, Joshua Shepherd, Tony Cheng, Adrien Doerig, David Soto, Omri Raccach, Paul Dux, Grace Lindsay, and Byron Sebastian. I have also benefited from discussing drafts of this book in an undergraduate class and a graduate seminar at UCLA during the year 2021. Matthew Hin Ming Leung and Mouslim Cherkaoui both helped me with editing the final proofs.

My parents won't be reading these words, unless they are translated into Chinese. Unfortunately, I turned out to be far more irreverent than they would have liked me to be. But my skepticism toward 'authoritative' opinions came from their strong characters. This book was very much written based on that foundation.

Finally, I have to thank Kayuet Liu. We have somehow overlapped at all of the various institutions mentioned above. She is my sociology and statistics tutor, and occasional coauthor. It may be inappropriate to describe one's colleague this way, but to my mind she is also the loveliest person in the world. I hope I can get away with this because she also happens to be my spouse.

### Introduction: Reality as One Sees It

I explain why we will focus on cognitive neuroscience rather than physics-centric theories

#### Chapter 1: Game Plan and Definitions

Subjective experience is our focus here, though it may relate to other notions of consciousness such as wakefulness or voluntary control too. We will arbitrate between global and local theories.

## Chapter 2: The Unfinished NCC Project

*If we control for the key experimental confounds, the evidence is in favor of the* prefrontal cortex's role in consciousness - although it may not be for the purpose of global broadcast.

#### Chapter 3: Hitting the Right Note

Lesions and stimulation studies are often conceptually misinterpreted or factually misrepresented. There is good evidence for the causal involvement of the prefrontal cortex in consciousness.

## Chapter 4: Untouched Raw Feels?

When we don't pay attention we don't perceive much details. But our experience may be subjectively 'inflated' beyond what we actually represent in the sensory cortices; troubles for local theorists.

## Chapter 5: What Good Is Consciousness?

To answer the question we need new experimental methods, beyond subliminal priming. Current evidence suggests that consciousness may not be as useful as global theories suggest.

# Chapter 6: A Centrist Manifesto

Let's take stock of the findings reviewed so far. Neither global nor local theories seem right.

What are the constraints for a plausible theory? What can we learn from current AI research?

## Chapter 7: Are We Alone?

We introduce the perceptual reality monitoring theory (PRM), according to which some animals may not be conscious. And yet, perhaps even a robot or computer program could be (to be revisited in Chapter 9).

## **x** Acknowledgments

## Chapter 8: Making Ourselves Useful

In the social and clinical sciences, 'consciousness' often refers to our rational grasp of reality.

How is this related to the kind of consciousness we have discussed so far?

## Chapter 9: What of the Hard Problem?

Subjective experiences are characterized by 'what it is like' to have them. Cognitive neuroscience can address this quality too. Metaphysical theories don't fare better, and may just hinder scientific progress.