

7 Questions about academic publishing



Dr. Tim Kietzmann

Dr. Tim Kietzmann is a postdoctoral investigator in the Kriegeskorte Lab at the MRC Brain and Cognition Science Unit in Cambridge, UK. At the interface of Cognitive Neuroscience and Machine Learning, Dr. Kietzmann tackles questions about the dynamics of visual information processing in the brain. Amongst many other topics, his research addresses whether visual areas undergo systematic changes over time during object perception, and how experience and cognitive factors shape neural representations. With an impressive combination of pattern recognition techniques, neuroimaging, psychophysics, computational modeling and most importantly an inquisitive mind, he explores the computational tricks of visual information processing that the brain utilizes in order to extract semantic meaning from the world that surrounds us.

Next to his fascinating research (<http://www.timkietzmann.de/>) and in the spirit of the Kriegeskorte lab (check out: <https://nikokriegeskorte.org/tag/open-science/> & <http://journal.frontiersin.org/article/10.3389/fncom.2012.00079/full>), he is dedicated to ideas about open science and promoting good scientific practice with his own rigorous work



1. What, in your opinion, are the best and the worst aspects of the peer-review and publication process?

If peer-review works the way it should, then it is tremendously helpful to the whole community. Reviewers can provide constructive feedback by providing an unbiased view from the outside, and thereby help the authors do better science and write better papers. Moreover, they shield the community from wrong conclusions or methodological errors, as they take time to dig into the details, and can request further analyses or data to water-proof the stories being told. While the current de-facto standard of one-sided anonymity is intended to allow reviewers to speak as openly as possible, it also opens the door for destructive, and at times biased comments, as well as favoritism among befriended researchers. This can be very frustrating, especially for young researchers, or researchers entering a new field. Some researchers, including me, explicitly sign their reviews in order to increase transparency in the process.

Writing good reviews takes a lot of time (time that you don't get to work on your favorite project), and you should expect to see a paper at least two, if not three or more times over the course of the next months. Although the overwhelming majority of researchers will agree that reviewing is a vital aspect of scientific progress, the task of reviewing itself is not usually counted as scientific output. I think this needs to change, as the value for the community gained through good and fair reviews cannot be overstated.

2. What do you think could make the peer review and publication process better?

I think the current publication system has quite a few problems. Let's focus on the financial aspects for now. Taxpayers are first paying us to perform our research, which is later reviewed by other scholars, who are also paid through taxes. Upon publication, researchers are then oftentimes asked to use their grant money (read: taxpayers money) to pay the publication fees to the publisher. Once published, papers are then often hidden behind paywalls, and the taxpayer needs to pay for access. Put differently, the taxpayers are asked to pay in order to read the results of work for which they have already paid the creation, the review, and the publication. It is hard to defend this while large publishers are running businesses that are more profitable than Apple, or BMW. More and more researchers are of the opinion that this runs counter the core ideas of an open, accessible science. Being a standard in other domains of science, cognitive neuroscience is rapidly warming up to the idea of preprint posting (via arxiv, or biorxiv for instance). The overall idea is that a paper will be posted online even before it is accepted for publication in a journal. This has many advantages, and barely any downsides. For one, preprints will guarantee open access, even if the work is later printed in a classic journal. Second, preprints can be read and commented on by anyone. This aids the evaluation process and will help the community in catching errors early on. Third, papers which are freely accessible, and available for longer will be cited more often (a powerful incentive for journals and researchers).

"If we knew what we were doing, it wouldn't be called research, would it?"

3. Do you feel that there is pressure to publish articles? Is this pressure appropriate for the advancement of science?

There is pressure for everyone, but it is most drastic for early career researchers (have you heard of "publish or perish"? whoever said it was not joking!). Grant- and job-decisions are oftentimes based on a researcher's past publishing success, which serves as proxy for scientific merit. While the number of published papers does say something about the productivity of a researcher, it may favor "quick and dirty" projects over scientific rigor. Good science takes time, and scientific quality is the most important aspect of publishing. In times of the replication crisis, we as a community should carefully think about the implicit incentives at play, and change policies where required to ensure that science adheres to the highest standards.

4. How long does it normally take for you to publish your research, from when you first start collecting data to when the paper is accepted?

This is hard to tell, as it can be dramatically different from project to project. In my experience, experimental work takes 1-2 years from conception to paper (sometimes longer, rarely less). Don't rush, don't be (too) afraid of being scooped, good science takes time and if multiple labs find the same effect, you have one more reason to sleep well at night. Be your harshest critic from the moment you enter a project, then reviewers cannot catch you off guard and the quality of your work will speak for itself.

5. How often do you peer review manuscripts for journals? Do you feel that it is important to do peer reviewing, and why? Do you enjoy reviewing manuscripts?

If they are in my area of expertise, I review most of the papers that I am invited for. Reviewing is an essential aspect of science, and because it is not currently counted towards one's scientific output, it is driven by an implicit agreement of reciprocity. Whenever you submit a manuscript for review, you expect about three

(sometimes more) experts from your area to stop their work, sit down, and go through your paper in all glorious detail in order to help you and the community. This system can only work, if we review at least as much as we submit. Anything less is selfish. Moreover, you have to see reviewing as a valuable learning experience. Reviewers get to look behind the scenes, and learn about the publishing process. Reviewing papers teaches you how to spot errors early on (also in your own work), and you learn to be constructive with your feedback. Reviewing is most enjoyable, whenever the authors and reviewers get into a constructive dialogue that leads to insights on both sides.

6. Have you ever had to review a manuscript from a friend or colleague? Or from someone you do not like or respect? And do you think personal biases affect the review process?

If I am of the opinion that I cannot be objective, I decline to review. Reviewers are often picked by the editors, who cannot know every personal connection across labs, and it is therefore essential to the scientific process to declare conflicts of interest. Personal biases can have strong effects on the review process (we are all human after all). The field may therefore benefit from increased transparency, e.g. through open review, or by making the reviewer's names public after publication.

7. Do you have any advice for students who want their masters research to lead to a publication?

Come work with me! In all seriousness though, if you find a topic that very much interests you, and you combine your curiosity with the absolute commitment to rigorous work, then success will come. If you have significantly contributed to the project, then it should be without question that you will be listed as an author later on. At the stage of the masters research, your experience should first and foremost be geared towards learning and mark your entrance into the wonderful and exciting world of science. Scientific work is not deterministic, and no-one should guarantee you a publication after only six months of project work. If we knew what we were doing, it wouldn't be called research, would it?