NX-435 EPFL

Guide for Writing a News & Views Article

Background:
A News & Views article is a type of editorial content commonly found in scientific journals. These articles are typically written by experts in the field and provide commentary, analysis, and perspective on recent research articles published in the same journal or elsewhere in the scientific community. They serve to highlight the significance of new research findings, offer interpretations of the results, and place them in a broader context within the relevant scientific field. They often help readers understand the implications of the research and its potential impact on the field, as well as identify any limitations or controversies surrounding the work. These articles are valuable for both researchers and non-specialists, as they offer insights into the latest developments and trends in various scientific disciplines.

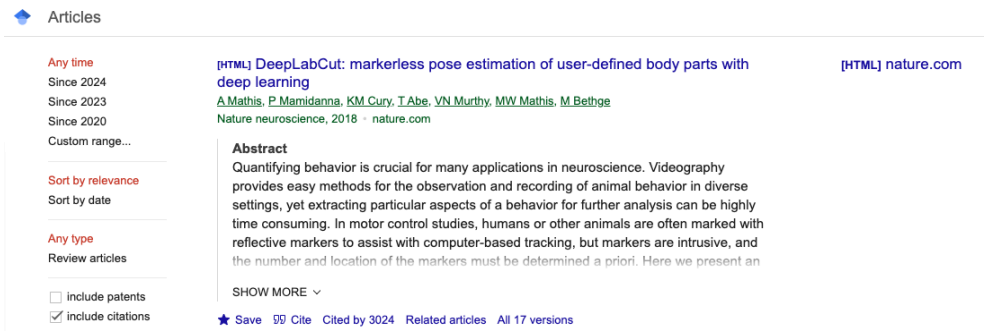
1. Selecting a Paper:
- Choose one of the papers discussed in the course (for example):

1. Steve Ramirez *et al,* Creating a False Memory in the Hippocampus. *Science* 341,387-391(2013).
2. Cohen, J., Haesler, S., Vong, L. et al.Neuron-type-specific signals for reward and punishment in the ventral tegmental area. Nature 482, 85–88 (2012).
3. Timothy W. Dunn, Christoph Gebhardt, Eva A. Naumann, Clemens Riegler, Misha B. Ahrens, Florian Engert, Filippo Del Bene. Neural Circuits Underlying Visually Evoked Escapes in Larval Zebrafish. Neuron, Volume 89, Issue 3, 2016, Pages 613-628, ISSN 0896-6273, https://doi.org/10.1016/j.neuron.2015.12.0
4. Bowles S, Hickman J, Peng X, Williamson WR, Huang R, Washington K, Donegan D, Welle CG. Vagus nerve stimulation drives selective circuit modulation through cholinergic reinforcement. Neuron. 2022 Sep 7;110(17):2867-2885.e7.
5. Pillow, J., Shlens, J., Paninski, L. et al. Spatio-temporal correlations and visual signalling in a complete neuronal population. Nature 454, 995–999 (2008).
6. Schneider, S., Lee, J.H. & Mathis, M.W. Learnable latent embeddings for joint behavioural and neural analysis. *Nature* 617, 360–368 (2023)
7. Hafting, T., Fyhn, M., Molden, S. et al. Microstructure of a spatial map in the entorhinal cortex. Nature 436, 801–806 (2005). https://doi.org/10.1038/nature03721.
8. Walker, E.Y., Sinz, F.H., Cobos, E. et al. Inception loops discover what excites neurons most using deep predictive models. Nat Neurosci 22, 2060−2065 (2019). https://doi.org/10.1038/s41593-019-0517-x
9. Vivek R. Athalye, Preeya Khanna, Suraj Gowda, Amy L. Orsborn, Rui M. Costa, Jose M. Carmena. Invariant neural dynamics drive commands to control different movements. Current Biology 2023

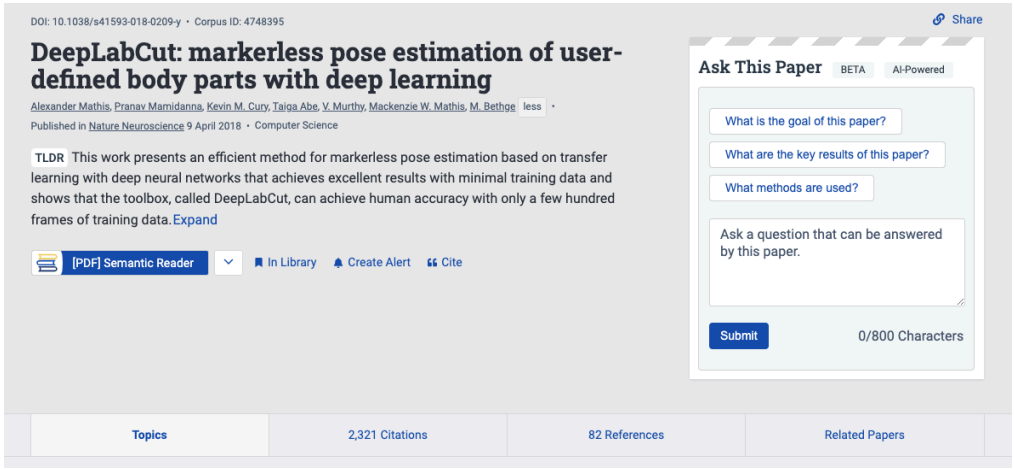
2. Research:

- Utilize online library databases such as Google Scholar, PubMed, or Sematic Scholar to find the chosen paper. Then, you can look at who they cite (and who is citing the work). This can help with important background context for the work.
- For example, here is a "view" of a paper on each resource. Target paper: **DeepLabCut: markerless pose estimation of user-defined body parts with deep learning**

    - **Google Scholar:** useful for seeing who cites it and to learn more about the authors**:** (check here)



    - **Semantic Scholar:** useful for seeing what it cites and a "**TL;DR**" (and a beta AI assistant take on the paper) (check here)



    - **PubMed**: excellent for more resources, paper links, and finding commentary on the paper (check here)

3. Study News & Views Examples:

- Read at least one example of a News & Views article from Nature or a similar journal.
- Here is how to find examples: News & Views Nature or another example set here: News & Views Nature Neuroscience.
- Analyze the structure, style, and content of the example article(s) in comparison to the guidelines provided.

4. Guidelines for Writing:

- **Length:** Aim for 900-1000 words, excluding the title, TL;DR, references, and figure captions.
- **Title:** Ensure titles contain no punctuation marks or abbreviations. Include a strapline and a brief sentence summarizing the article's message.
- **"TL;DR**": write a short 1-2 sentences summarizing the paper.
- **Opening Paragraph:** Provide a succinct introduction mentioning the new research finding, its significance and its connection to the broader literature of the paper under discussion.
- **Detail and Explanation:** Introduce the paper and delve into the details of the research, incorporating your own analysis and views. This is often the longest section.
- **Implications and Future Directions**: Conclude with comments on the implications of the new research and potential future directions for further investigation.
- **Writing Style:** Avoid using specialized terminology excessively. Write in a clear, engaging manner accessible to non-specialist readers.
- **[optional] Figure:** Include a figure to illustrate key points or background science. Limit to one figure, which can be reproduced from the selected paper.
- **References:** Keep references to a minimum (ideally 8-15), cited sequentially in the text using superscript numbers in Nature style.

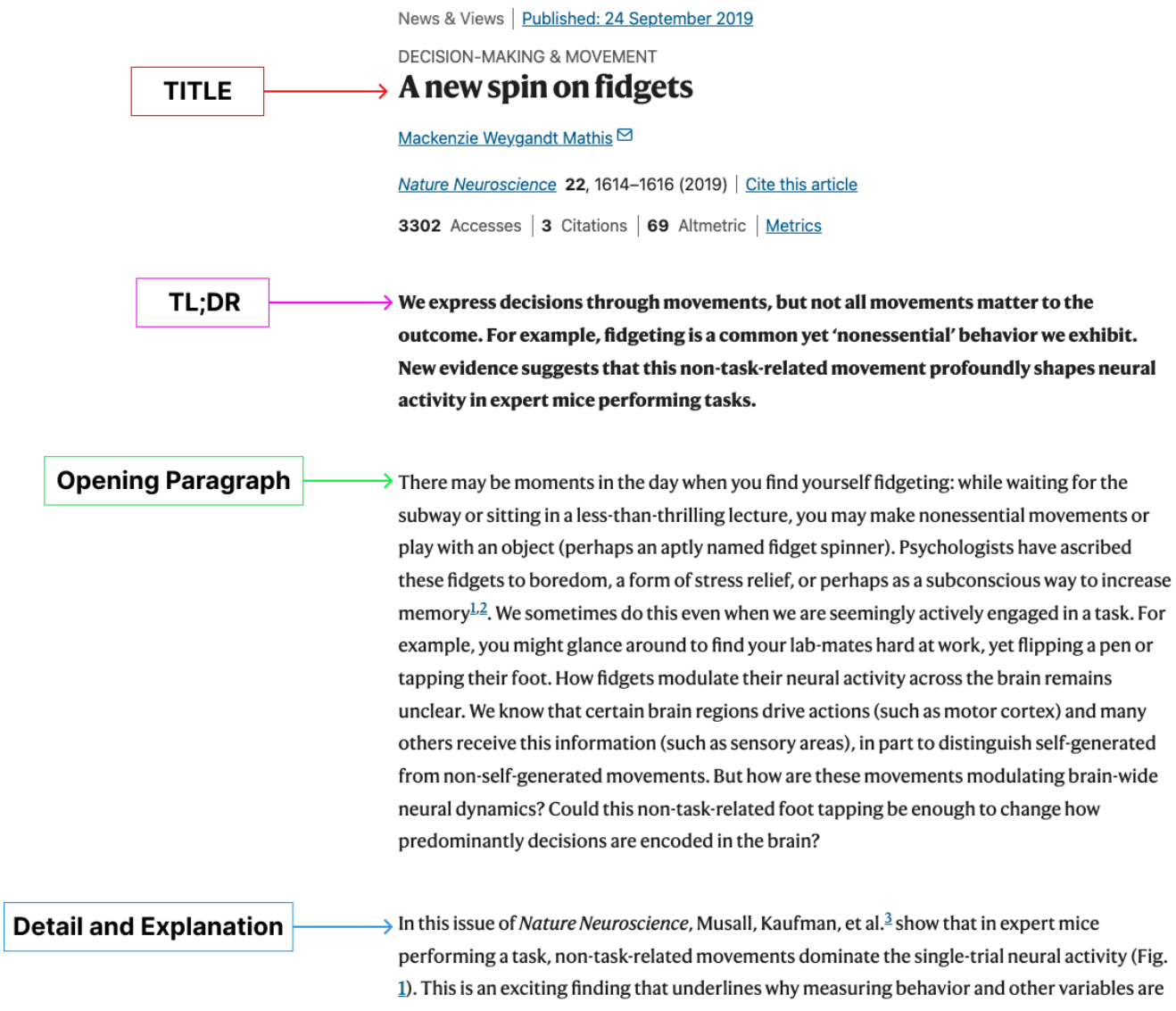
5. Formatting:

- Write the article in a clear, concise manner, ensuring it adheres to the guidelines provided.
- 1.5 line spacing using Times New Roman font size 12 is ideal.
- Proofread carefully for clarity, coherence, and correctness of grammar and punctuation!
- **WARNING:** You are not allowed to use LLMs (ChatGPT) to generate or write this assignment. **IF** you want to use ChatGPT (or equivalent) for "fine-tuning" for grammar and clarity, you are allowed to do so, but you MUST declare this at the end of your document. You are fully responsible for the contents of this work. Please remember that plagiarism is a serious offense at EPFL.

6. Submission:

- Submit the final article in person or as a PDF via email to mackenzie.mathis@epfl.ch; please put the email subject as "NX-435 Project Set #1 YOUR_NAME"

7. Example: https://www.nature.com/articles/s41593-019-0504-2



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DECISION-MAKING & MOVEMENT

A new spin on fidgets

Mackenzie Weygandt Mathis

Nature Neuroscience **22**, 1614–1616 (2019) | Cite this article

3302 Accesses | **3** Citations | **69** Altmetric | Metrics

We express decisions through movements, but not all movements matter to the outcome. For example, fidgeting is a common yet 'nonessential' behavior we exhibit. New evidence suggests that this non-task-related movement profoundly shapes neural activity in expert mice performing tasks.

There may be moments in the day when you find yourself fidgeting: while waiting for the subway or sitting in a less-than-thrilling lecture, you may make nonessential movements or play with an object (perhaps an aptly named fidget spinner). Psychologists have ascribed these fidgets to boredom, a form of stress relief, or perhaps as a subconscious way to increase memory[1,2]. We sometimes do this even when we are seemingly actively engaged in a task. For example, you might glance around to find your lab-mates hard at work, yet flipping a pen or tapping their foot. How fidgets modulate their neural activity across the brain remains unclear. We know that certain brain regions drive actions (such as motor cortex) and many others receive this information (such as sensory areas), in part to distinguish self-generated from non-self-generated movements. But how are these movements modulating brain-wide neural dynamics? Could this non-task-related foot tapping be enough to change how predominantly decisions are encoded in the brain?

In this issue of *Nature Neuroscience*, Musall, Kaufman, et al.[3] show that in expert mice performing a task, non-task-related movements dominate the single-trial neural activity (Fig. 1). This is an exciting finding that underlines why measuring behavior and other variables are