

Data Citation and the Author Byline: Who's Line Is it Anyway?

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A recent article by Rohlfsing & Poline¹ has started a dialog regarding the use of 'Institutional Authorship' in the authorship list of manuscripts that utilize the resources of some consortia and organizations. The criteria for authorship adopted by Neuroinformatics² (see **Box**) are set by the International Committee of Medical Journal Editors (ICMJE).³ Rohlfsing and Poline provide a detailed reading and interpretation of these

guidelines makes it clear that 'institutions' or 'consortia' do not meet the specific criteria for inclusion as an author. In conjunction with efforts to improve the acknowledgement and counting of the impact of all neuroscience resources, *Neuroinformatics* plans to implement a policy in the future to phase out the routine acceptance of manuscripts with Corporate or Institutional Authorship.

Neuroinformatics Instructions for Authors

The criteria for authorship adopted by Neuroinformatics are set by the International Committee of Medical Journal Editors at <http://www.icmje.org/index.html#authorship>

Specifically, authorship credit should be based only on: (1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published. Conditions 1, 2, and 3 must all be met.

Acquisition of funding, the collection of data, feedback on the manuscript, or general supervision of the research group, by themselves, do not justify authorship

See <http://www.springer.com/biomed/neuroscience/journal/12021> for details.

An interpretation that would exclude 'consortium' authorship, however, results in an impasse for large-scale science that has adopted such practices. Some consortia, such as

Alzheimer's Disease Neuroimaging Initiative (ADNI),⁴ require, as part of their data use agreement, institutional authorship. Any journal that would prohibit such authorship, therefore, would cut off submission of manuscripts derived from these sources. This would probably not have an adverse effect on the publication of papers as these manuscripts would likely be submitted to journals that do not enforce such an authorship limitation/definition.

¹ Rohlfsing, T., & Poline, JB. (2012, Feb). Why shared data should not be acknowledged on the author byline. *Neuroimage*, 15;59(4):4189–95.

² <http://www.springer.com/biomed/neuroscience/journal/12021>

³ <http://www.icmje.org/index.html#authorship>

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⁴ <http://www.adni-info.org/>

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 STAT- In-Process
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 TI - aBEAT: a toolbox for consistent analysis of longitudinal adult brain MRI.
 PG - e60344
 LID - 10.1371/journal.pone.0060344 [doi]
 AB - Longitudinal brain image analysis is critical for revealing subtle but complex structural and functional changes of brain during aging or in neurodevelopmental disease. However, even with the rapid increase of clinical research and trials, a software toolbox dedicated for longitudinal image analysis is still lacking publicly. To cater for this increasing need, we have developed a dedicated 4D Adult Brain Extraction and Analysis Toolbox (aBEAT) to provide robust and accurate analysis of the longitudinal adult brain MR images. Specially, a group of image processing tools were integrated into aBEAT, including 4D brain extraction, 4D tissue segmentation, and 4D brain labeling. First, a 4D deformable-surface-based brain extraction algorithm, which can deform serial brain surfaces simultaneously under temporal smoothness constraint, was developed for consistent brain extraction. Second, a level-sets-based 4D tissue segmentation algorithm that incorporates local intensity distribution, spatial cortical-thickness constraint, and temporal cortical-thickness consistency was also included in aBEAT for consistent brain tissue segmentation. Third, a longitudinal groupwise image registration framework was further integrated into aBEAT for consistent ROI labeling by simultaneously warping a pre-labeled brain atlas to the longitudinal brain images. The performance of aBEAT has been extensively evaluated on a large number of longitudinal MR T1 images which include normal and dementia subjects, achieving very promising results. A Linux-based standalone package of aBEAT is now freely available at <http://www.nitrc.org/projects/abeat>.
 AD - IDEA Lab, Department of Radiology and BRIC, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA.
 FAU - Dai, Yakang
 AU - Dai Y
 FAU - Wang, Yaping
 AU - Wang Y
 FAU - Wang, Li
 AU - Wang L
 FAU - Wu, Guorong
 AU - Wu G
 FAU - Shi, Feng
 AU - Shi F
 FAU - Shen, Dinggang
 AU - Shen D
 CN - Alzheimer's Disease Neuroimaging Initiative
 LA - eng
 GR - AG041721/AG/NIA NIH HHS/United States
 GR - EB006733/EB/NIBIB NIH HHS/United States
 GR - EB008374/EB/NIBIB NIH HHS/United States
 GR - EB009634/EB/NIBIB NIH HHS/United States
 GR - U01AG024904/AG/NIA NIH HHS/United States
 GR - Canadian Institutes of Health Research/Canada
 PT - Journal Article
 PT - Research Support, N.I.H., Extramural
 PT - Research Support, Non-U.S. Gov't
 DEP - 20130403
 PL - United States
 TA - PLoS One
 JT - PLoS one
 JID - 101285081
 SB - IM
 PMC - PMC3616755
 OID - NLM: PMC3616755
 IR - Weiner MW
 FIR - Weiner, Michael W
 IR - Aisen P
 FIR - Aisen, Paul
 IR - Jack CR Jr
 FIR - Jack, Clifford R Jr
 IR - Toga AW
 FIR - Toga, Arthur W
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 ...
 PHST- 2013/04/03 [epublish]
 AID - 10.1371/journal.pone.0060344 [doi]
 AID - PONE-D-12-33260 [pii]
 PST - ppublish
 SO - PLoS One. 2013;8(4):e60344. doi: 10.1371/journal.pone.0060344. Epub 2013 Apr 3.

◀ **Fig. 1** This figure shows the PubMed and MEDLINE representations for a specific paper (Dai Y, Wang Y, Wang L, Wu G, Shi F, Shen D; Alzheimer's Disease Neuroimaging Initiative. aBEAT: a toolbox for consistent analysis of longitudinal adult brain MRI. *PLoS One*. 2013;8(4):e60344) that includes Corporate Authorship (CN) and identifies Collaborator Names (IR)

What currently happens to authorship citations of this sort in the MEDLINE index? Introduced in 2001, the National Library of Medicine (NLM) indexing includes a 'Corporate Author (CN)' field in order to indicate a corporate or consortium author in the author list. In the NLM 'Authorship in MEDLINE' fact sheet,⁵ after reminding users to use the ICMJE guidelines, they provide details about how these corporate names are decoded and indexed. Also from this fact sheet is a definition for citations fields for 'collaborator names':

When a group name for a specific consortium, committee, study group, or the like appears in an article byline, the personal names of the members of that group may be published in the article text. Such names are entered as collaborator names for the MEDLINE citation. Collaborator names are entered for a MEDLINE citation only when a group (corporate) author name is present for the citation.

Fig. 1 includes MEDLINE details for an example publication using the ADNI consortium data that includes the Alzheimer's Disease Neuroimaging Consortium as an author and enumerates 317 Collaborator Names (coded as IR and FIR in the MEDLINE syntax).⁶

It is important to look at why institutional authorship is required by some organizations. The reason seems clear; it is the only currently available way to get an easily accessible, precise counting of publications of the use of the 'product' of a consortium. If you want to know how many publications ADNI data is associated with a simple query at PubMed⁷ "Alzheimer's Disease Neuroimaging Initiative[cn]" yields 420 citations (on 5/1/2013). This precise number would be very labor intensive to obtain through the counting of times that ADNI is cited in an 'Acknowledgements' section (someone would have to review every paper published to monitor for such occurrences) or through counting of citations to a specific set of data papers (papers can be cited even when the data is not used).

Given the amount of money invested into these various consortia and initiatives, it is clearly important to be able to generate accurate, easy to obtain quantitative metrics for the success of the effort. The question is if this 'need for

counting' is best served by also usurping the traditional meaning of manuscript authorship? It is unlikely that any consortium investigator includes the 420 citations on their Curriculum Vitae, or that anyone reading the vitae would know what to make of that number if they did.

The problem is exacerbated in that there are many groups/consortia that would like a good counting system to support the assessment of the utility of their efforts. Not only data, but software, websites, equipment, etc. can all be the 'product' of a system that would value a precise counting of the utilization of their efforts. Using a 'corporate author' procedure for this counting just opens the floodgates for using authorship to count use of everything. Why shouldn't the software development teams of the FMRIB Software Library (FSL),⁸ FreeSurfer,⁹ AFNI,¹⁰ Statistical Parametric Mapping (SPM),¹¹ etc. all use corporate authorship to track their software utilization?

Therefore, a different solution to this problem is to make acknowledgement and attributions of resources used in manuscripts countable and trackable (in a similar way that current authorship and literature citations are currently). It was in someone's interest when the tracking for traditional authorship in publications was first introduced, followed by the tracking of cited literature in articles. Both, in the end, driven by the 'economics' for metrics such as the authors 'h-index'¹² and a journals 'impact factor'.¹³ It is now in the 'best interest' of the neuroscience community to better track the large-consortia investment in numerous 'big science' efforts in order to effectively document utilization. In principle, this tracking does not seem that it should be difficult to implement. The MEDLINE citation has already proved quite adaptable to the evolution of citation description needs. As currently constructed, a 'Corporate Author', unless it really did perform ICMJE authorship activities and this is duly annotated in the manuscript, is essentially a 'Corporate/Consortia Attribution'. Instead of being transcribed from the 'author byline', it should be extracted from the Acknowledgement section of the manuscript. Consortia development and credit for virtually any type of data, software or other resource can be attributed in this fashion, as long as the MEDLINE indexing is updated to follow such conventions. The neuroscience community (its scientists, publications, authors, editors and reviewers) needs to unite to insist on a course of action that preserves the meaning of individual authorship.

⁵ <http://www.nlm.nih.gov/pubs/factsheets/authorship.html>

⁶ Dai, Y., Wang, Y., Wang, L., Wu, G., Shi, F., & Shen, D. (2013). Alzheimer's Disease Neuroimaging Initiative. aBEAT: a toolbox for consistent analysis of longitudinal adult brain MRI. *PLoS One*, 8(4), e60344.

⁷ <http://www.ncbi.nlm.nih.gov/pubmed>

⁸ <http://fsl.fmrib.ox.ac.uk/fsl/>

⁹ <https://surfer.nmr.mgh.harvard.edu/>

¹⁰ <http://afni.nimh.nih.gov/afni/>

¹¹ <http://www.fil.ion.ucl.ac.uk/spm/>

¹² <http://en.wikipedia.org/wiki/H-index>

¹³ http://en.wikipedia.org/wiki/Impact_factor

One might be tempted to ask “Is it too late already?” and suggest that the community should just embrace and expand their use of the current Corporate Author designation to its fullest. A paper, using the ADNI data, and software from FSL and FreeSurfer, should include ‘corporate’ authorship for each of these development teams. Yet this seems to diminish the scientific value of the ‘author’ con-

cept in favor of the economic value of ‘count-ability’, and hopefully the answer is ‘no’. In support of this position and in response to the scientific community reactions, the journal *Neuroinformatics* plans to phase out the acceptance of manuscripts with Corporate Authorship, in favor of the adoption of Corporate/Consortia Attribution indexing, by January 2015.