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NiMARE: Neuroimaging Meta-Analysis Research Environment

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Summary

We present NiMARE (Neuroimaging Meta-Analysis Research Environment; RRID:SCR_017398), a Python library for neuroimaging meta-analyses and meta-analysis-related analyses (Salo et al., 2022). NiMARE is an open source, collaboratively-developed package that implements a range of meta-analytic algorithms, including coordinate- and image-based meta-analyses, automated annotation, functional decoding, and meta-analytic coactivation modeling. By consolidating meta-analytic methods under a common library and syntax, NiMARE makes it straightforward for users to employ the appropriate approach for a given analysis. In this paper, we describe NiMARE's architecture and the methods implemented in the library. Additionally, we provide example code and results for each of the available tools in the library.

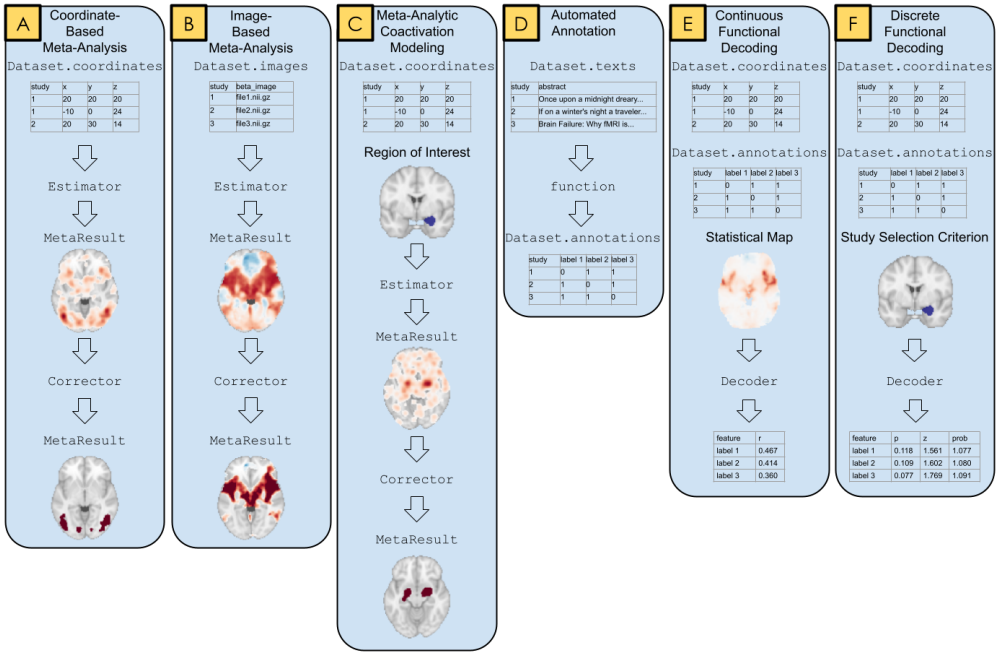

Figure 1: A graphical representation of tools and methods implemented in NiMARE.

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References

Salo, T., Yarkoni, T., Nichols, T. E., Poline, J.-B., Kent, J. D., Gorgolewski, K. J., Glerean, E., Bottenhorn, K. L., Bilgel, M., Wright, J., Reeders, P., Kimbler, A., Nielson, D. N., Yanes, J. A., Pérez, A., Oudyk, K. M., Jarecka, D., Enge, A., Peraza, J. A., & Laird, A. R. (2022). *Neurostuff/NiMARE: 0.0.12rc1* (Version 0.0.12rc1). Zenodo. https://doi.org/10.5281/zenodo.6091632