SciCodes: Astronomy Research Software and Beyond

Astrophysics Source Code Library (ASCL ascl.net) registers software used in refereed research; it can also serve as a repository

It improves research transparency and reproducibility by making these codes more discoverable for examination

Other disciplines also have code registries and/or repositories

Software developed for one discipline may also be useful in another

Examples: WND-CHARM (Shamir) used in biological image and galaxy morphology research

Emcee (Foreman-Mackey) used in astrophysics, mathematics, hydrology, and COVID-19 research

Shamir, L., Orlov, N., Eckley, D.M. *et al.* Wndchrm – an open source utility for biological image analysis. *Source Code Biol Med* **3**, 13 (2008). https://doi.org/10.1186/1751-0473-3-13

Foreman-Mackey, D., Hogg, D. W., Lang, D., and Goodman, J., "emcee: The MCMC Hammer", *PASP*, vol. 125, no. 925, p. 306, 2013. doi:10.1086/670067.

SciCodes!

Consortium of scientific software registries and repositories (https://scicodes.net)

Goals

Enable searching across multiple software registries

Speed adoption of CodeMeta and CFF standards to improve software citation and discoverability

Strengthen our resources through implementation of identified best practices

Keep up with and share advances through monthly presentations

Discuss challenges and share solutions to common issues that arise in managing our resources

Benefits to astronomers

Ability to discover useful research software from other fields
Enhanced findability of your software by others
Increased software citation

Participating registries and repositories (so far!)

Astrophysics Source Code Library (ASCL)
Australian Research Data Commons (ARDC)
Biological General Repository for Interaction Datasets (BioGRID)
CaltechDATA (Caltech research data and software)
Computational Infrastructure for Geodynamics (CIG)
ELIXIR bio.tools (Bioinformatics and life sciences)
HAL (Open Archive)
Harvard Dataverse
MINT (Model Integration)
ModelDB (Computational neuroscience modeling)
Network for Computational Modeling in Social and Ecological Sciences (CoMSES)
Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC) for Biogeochemical Dynamics
Ontosoft (Geoscience)
PhysioNet (Computational physiology)
Remote Sensing Code Library (RSCL)
SBGrid (Structural biology)
SciCrunch
simTK (Biomedical computation and simulation)
Software Heritage
swMATH (Mathematical software)
Systems Biology Markup Language (SBML)
DOECODE (U.S. Department of Energy funded code)
Zenodo

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