

Keynote 6: The Non-Clinical Tomography Users Research Network (NoCTURN): Who We Are and What We Are Trying to Accomplish

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The Non-Clinical Tomography Users Research Network (NoCTURN) was established in 2022 to advance Findability, Accessibility, Interoperability, and Reuse (FAIR) and Open Science (OS) practices in the computed tomographic (CT) imaging community. CT specialists utilize a shared pipeline to create digital representations of real-world objects for research, education, and outreach, and we face a shared set of challenges and limitations imposed by siloing of current workflows, best practices, and expertise. Mirroring the U.S. National Science Foundation's "10 Big Ideas" of Convergence Research (2016), and in consideration of the White House Office of Science and Technology Policy's Nelson Memorandum (2020), NoCTURN is leveraging input from a broad community of more than 100 CT educators, researchers, curators, and industry stakeholders to propose improvements to data handling, management, and sharing that cut across scientific disciplines and extend beyond.

Our primary goal is to develop practical recommendations and tools that link today's CT data to tomorrow's CT discoveries. NoCTURN is working toward this goal by providing a platform to: 1) engage the international scientific CT community via participant recruitment from imaging facilities, academic departments and museums, and data repositories across the globe; 2) stimulate improvements for CT imaging and data management standards that focus on FAIR and OS principles; and 3) work directly with private companies that manufacture the hardware and software used in CT imaging, visualization, and analysis to find common ground in documentation and interoperability that better reflects the OS standards championed by federal funding agencies. The planned deliverables from this three-year grant include a 'Rosetta Stone' for CT terminology, an interactive world map of CT facilities, a guide to CT repositories, and 'Good, Better, Best' guidelines for metadata and long-term data management. We aim to reduce the barriers to entry that isolate individuals and research labs, and we anticipate that developing community standards and improving methodological reporting will enable long-term, systemic changes necessary to aid those at all levels of experience in furthering their access to and use of CT imaging.