



NSF Campus Cyberinfrastructure PI and
Cybersecurity Innovation for Cyberinfrastructure PI Workshop
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NSF Program: Campus Cyberinfrastructure

Program Area: CC-NIE

Award Number: 1541468

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**Project Title: [Adapting Research Workflows
to Use Campus Cyberinfrastructure](#)**



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Quad Chart for UC Berkeley CI Engineer Engagements

Approach:

- Help researchers define science requirements and translate them into computation, network, storage, and workflow requirements.
- Map these requirements onto a “Data Pipeline”, engineering the solution at various points.
- Adapt pipelines and workflows to similar use cases, e.g. bio-imaging

Deliverables:

- Jupyter notebook paired with Singularity container for running Tesseract OCR with use-case-specific post-processing
- Jupyter notebook and Singularity container for 3D modeling with photogrammetry, with Box integration
- Data pipeline for real-time analysis of videos of neural activity using institutional HPC cluster



Photogrammetry workflow using Jupyter notebook, Box for data storage/transfer, and Photoscan software in a Singularity container. Example 3D model of ancient Egyptian sarcophagus from Prof. Rita Lucarelli.

Broader Impact:

- Adoption of Photogrammetry notebook across campus archaeology community & peer institutions.
- OCR notebook now supporting 1M+ page OCR jobs in law, Near Eastern Studies fields. Presented at Int’l Digital Humanities conference.
- Collaborate with neuroscience lab on data streams from instruments to HPC, speeding processing turn-around, to enable near-interactive experiments.

Project URLs:

- *OCR notebook (beta):*
<http://bit.ly/2w72Wji>
- *Photogrammetry notebook:*
<http://bit.ly/2voZMtT>

Happy to talk with other institutions that might find these useful, especially for engaging SBE researchers!