

Reference: [MoonDAO Final Report Reference](#)

Original Proposal: [Reproduce Literature as DeSci Node Proposal](#)

Reproduce Literature As DeSci Node: Final Report

Summary

DeSci Labs (desci.com) is a web3 publishing platform. Documents, data, and code are added to a “node” on-chain, and DeSci’s interface allows the user to execute the author’s code on the author’s data to reproduce the figures that are in the document.

The goal of this project was to “learn by doing.” That said, the DeSci Labs platform underwent a significant overhaul during the project period. I was able to provide valuable feedback to the DeSci dev team as a live tester during video calls.

Overall the project was successful. A paper’s figures were reproduced, a DeSci node was created, and the relationship between DeSci and MoonDAO is stronger than ever.

Results

1. **Objective:** Reproduce facts and figures from a published work using the provided data and code.
 - a. **Key Result:** Reproduce the figures in the original publication in the native code language (Matlab)
 - i. **Results:** All figures were reproduced in Matlab.
 - ii. **Learnings:** Never take code at face value. Some of the code had to be tweaked to run successfully. No changes altered the fundamental math.
 - iii. **Maintenance:** None.
 - iv. **Team’s Self-Reported Score:** A
 - v. **Team Contributions**
Phil: Executed and tweaked published code.
Marta: None
Manuel: None
 - b. **Key Result:** Reproduce the figures in the original publication in an open language (Python).
 - i. **Results:** 3 of 12 figures were reproduced in Matlab. The basics were demonstrated but not all of the findings of the paper were reproduced.
 - ii. **Learnings:** iPy notebooks are wonderful.

- iii. **Maintenance:** None
- iv. **Team's Self-Reported Score:** B+
- v. **Team Contributions**
Phil: Python code and iPy notebook with reproduction as a tutorial by example.
Marta: None
Manuel: None

- c. **Key Result:** Publish the original and reproduction code in the public domain.
 - i. **Results:** <https://github.com/philiplinden/cremons-et-al-2022>
 - ii. **Learnings:** It is good practice to put the reproducible code in a docker container so it runs the same way every time without introducing variables from the user's environment.
 - iii. **Maintenance:** None
 - iv. **Team's Self-Reported Score:** A
 - v. **Team Contributions**
Phil: Wrote all code and docs.
Marta: None
Manuel: None

2. **Objective:** Publish the reproduction as an interactive DeSci node.

- a. **Key Result:** A node is created for the selected publication.
 - i. **Results:** <https://nodes.desci.com/dpid/137>
 - ii. **Learnings:** It is straightforward to publish a node, but it is difficult to get the code to run through the platform itself via [Bacalhau](#).
 - iii. **Maintenance:** None
 - iv. **Team's Self-Reported Score:** B
 - v. **Team Contributions**
Phil: DeSci Node and Dockerized code.
Marta: None
Manuel: None
- b. **Key Result:** The document has links from document figures to code blocks.
 - i. **Results:** Success.
<https://nodes.desci.com/node/v-iY8S9-RkJSnSWChx4QIDQiUTZVw3KhI68Rgt7aQu4/root/cremons-et-al-2022/Earth%20and%20Space%20Science%20-%202022%20-%20Cremons.pdf>
 - ii. **Learnings:** This feature is very buggy. I reported most bugs to the dev team.
 - iii. **Maintenance:**
 - iv. **Team's Self-Reported Score:** A
 - v. **Team Contributions**
Phil: Annotated the PDF and submitted bug reports to platform dev team.
Marta: None

Manuel: None

- c. **Key Result:** The facts and figures from Objective 1 are reproduced in the browser on the node.
- i. **Results:** Not achieved. Reproduced figures from dockerized scripts and executed on Bacalhau, but the outputs (logs or images) could not be recovered from the remote executions.
 - ii. **Learnings:** It is best to have code for each figure be a standalone function or script that can be called to reproduce only the specific media in question.
 - iii. **Maintenance:** None
 - iv. **Team's Self-Reported Score:** C+
 - v. **Team Contributions**
Phil: Docker container and Bacalhau testing.
Marta: None
Manuel: None

Coordinape Results

Member Name	% of total rewards	Upfront Payment
Phil	100	0