



CWP Workshop

6 January 2020

Golden, Colorado

Today's Workshop – Rough Schedule

- From 8.30am – Coffee and Madagascar Package Introduction
- 9.00-9.15am – Introduction (Shragge)
- 9.15-10.15am – Using Madagascar on the Command Line (Girard)
- 10.15-10.30am – Break (informal)
- 10.30-11.30am – Introduction to Python and SConstruct (Shragge)
- 11.30-12.30pm – Madagascar+SConstruct (Girard) – Exercise I
- 12.30-1.30pm – Lunch
- 1.30-2.30pm – Seismic Modelling (Girard) – Exercise II
- 2.30-3.30pm – Adding your own programs (Shragge) – Exercise III
- 3.30pm onward – Wrap up / Sundowner (by donation)

What is Science?



Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories.

What is Science?



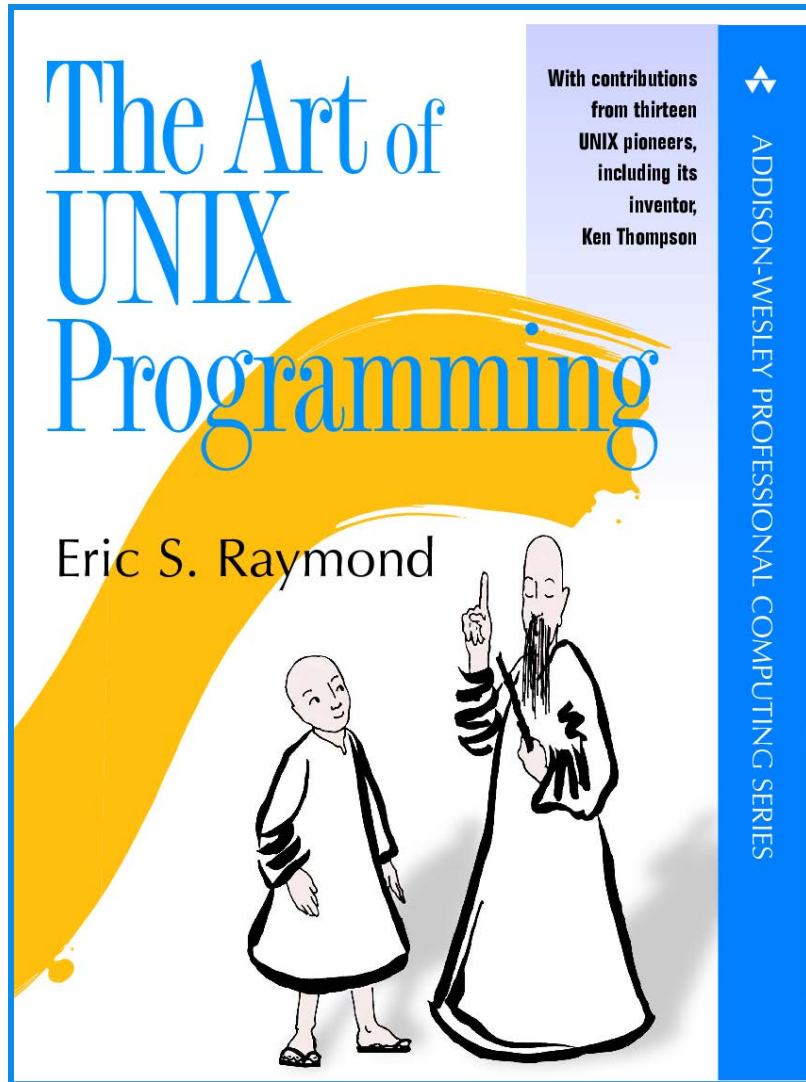
Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories. The success and credibility of science are anchored in the willingness of scientists to expose their ideas and results to **independent testing and replication** by other scientists.

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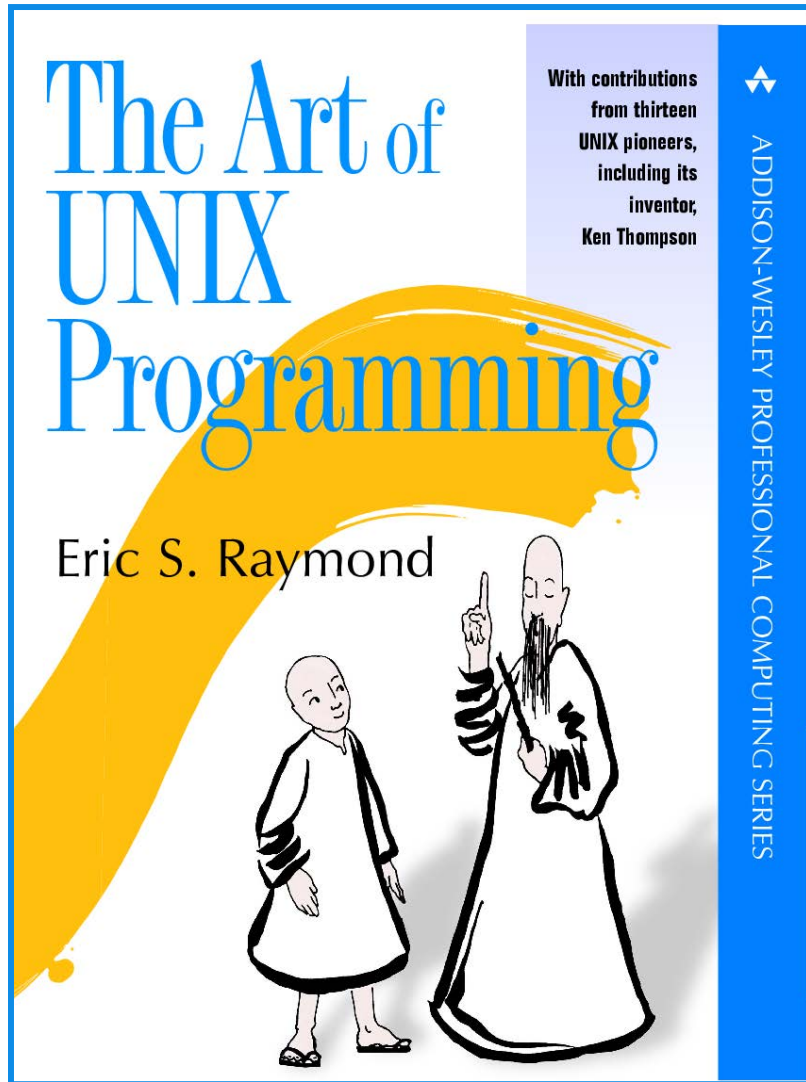
Science is the systematic enterprise of gathering knowledge about the universe and organizing and condensing that knowledge into testable laws and theories. The success and credibility of science are anchored in the willingness of scientists to expose their ideas and results to **independent testing and replication** by other scientists. This requires the **complete and open exchange of data, procedures and materials.**

Software versus Science



“Abandoning the habit of secrecy in favor of process transparency and peer review was the crucial step by which alchemy became chemistry.

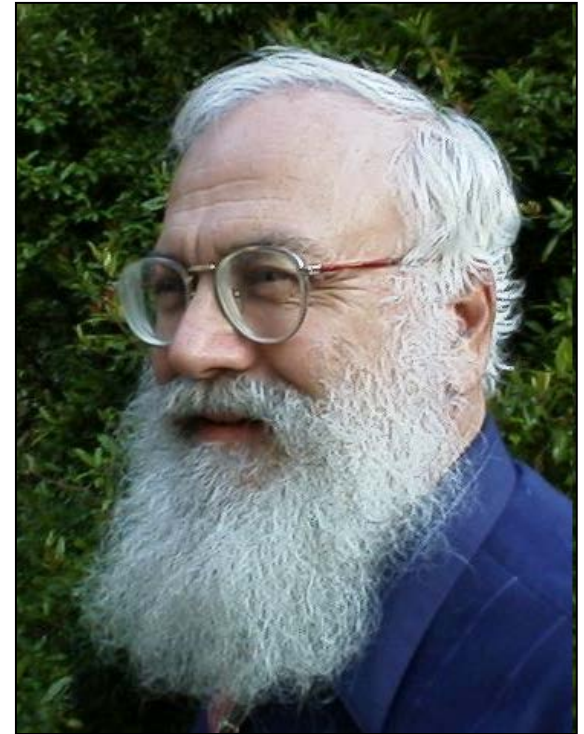
Software versus Science



“Abandoning the habit of secrecy in favor of process transparency and peer review was the crucial step by which alchemy became chemistry. In the same way, it is beginning to appear that open-source development may signal the long-awaited maturation of software development as a discipline.”*Eric Raymond*

Claerbout's Principle

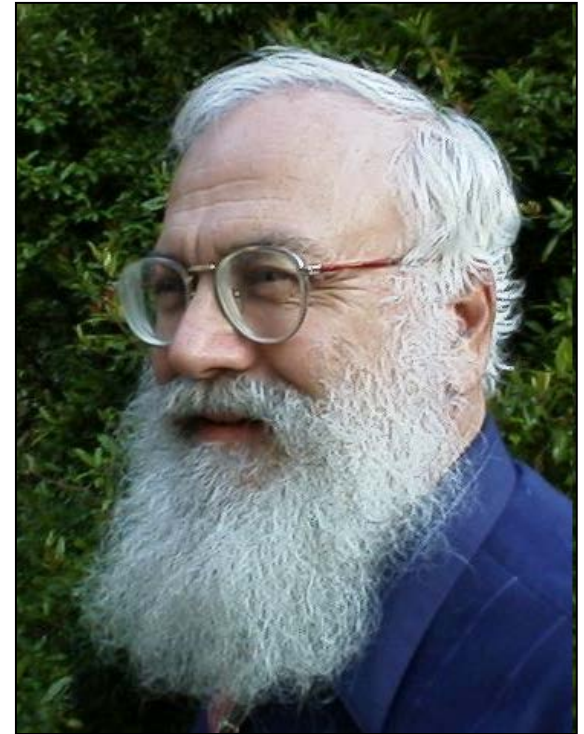
“An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship.



Claerbout's Principle

“An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship. The actual scholarship is the **complete software development environment and the complete set of instructions which generated the figures.**”

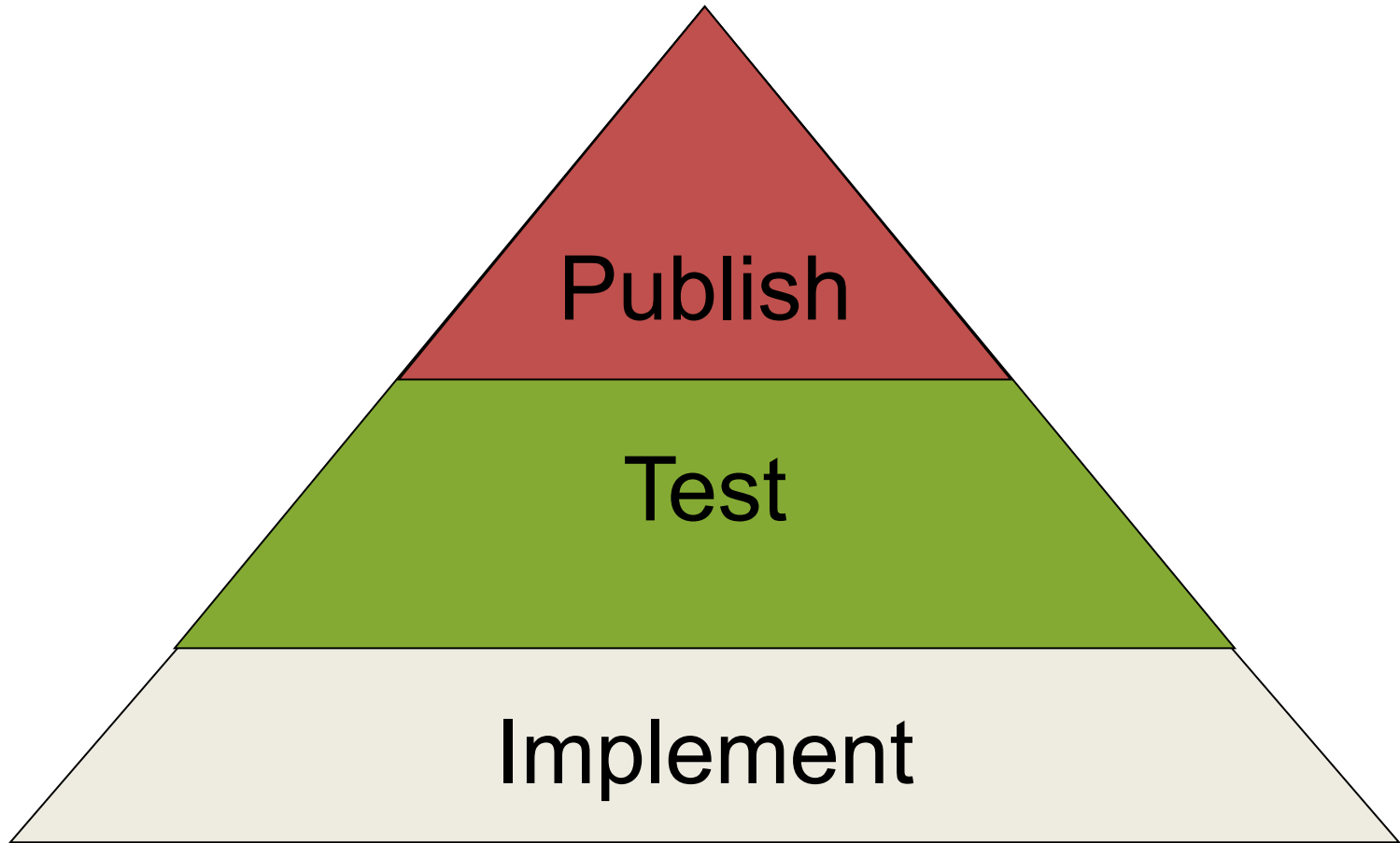
(Buckheit and Donoho, 1995)



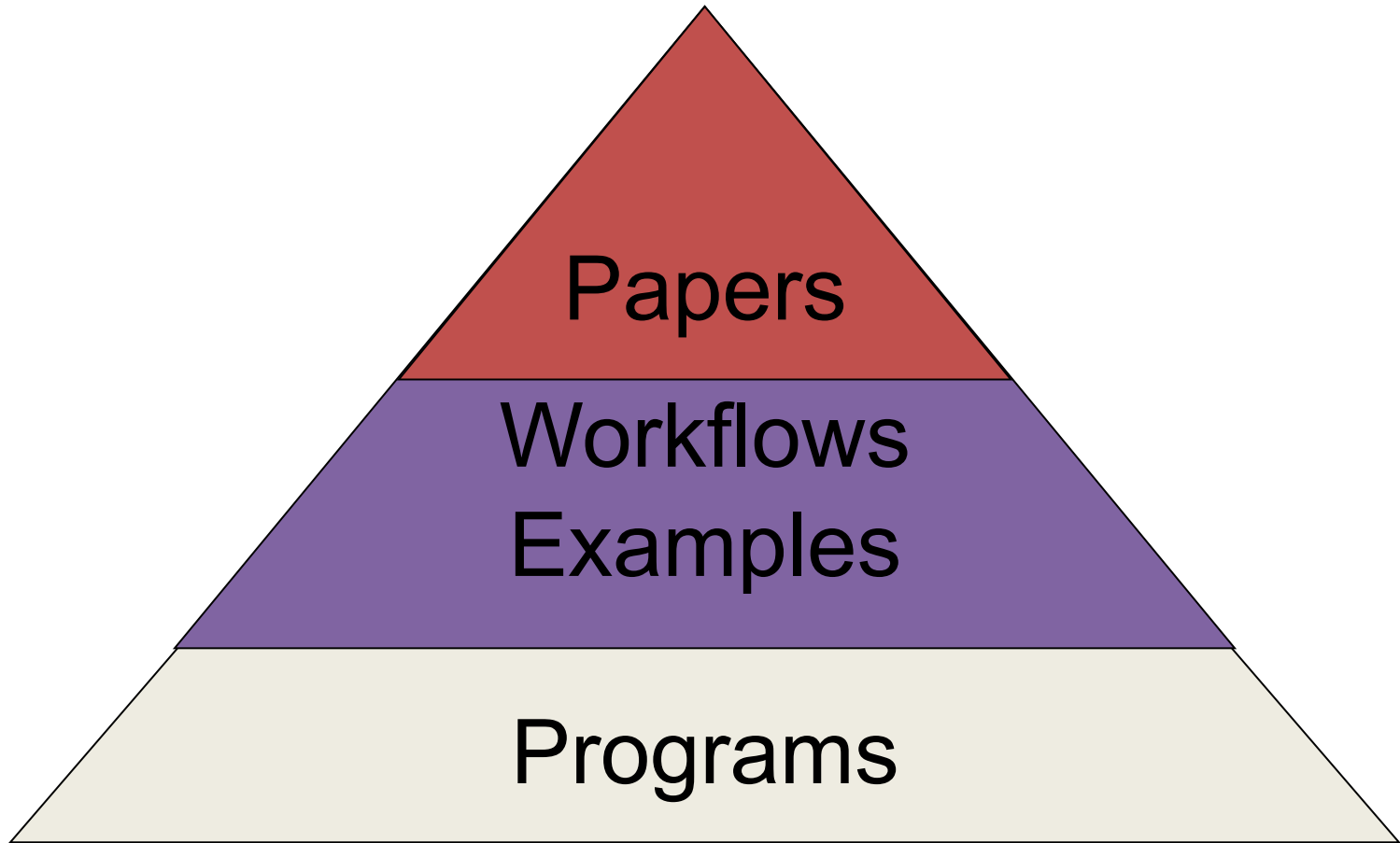
Reproducible Research

“It is a big chore for one researcher to reproduce the analysis and computational results of another [...] I discovered that this problem has a simple technological solution: illustrations (figures)

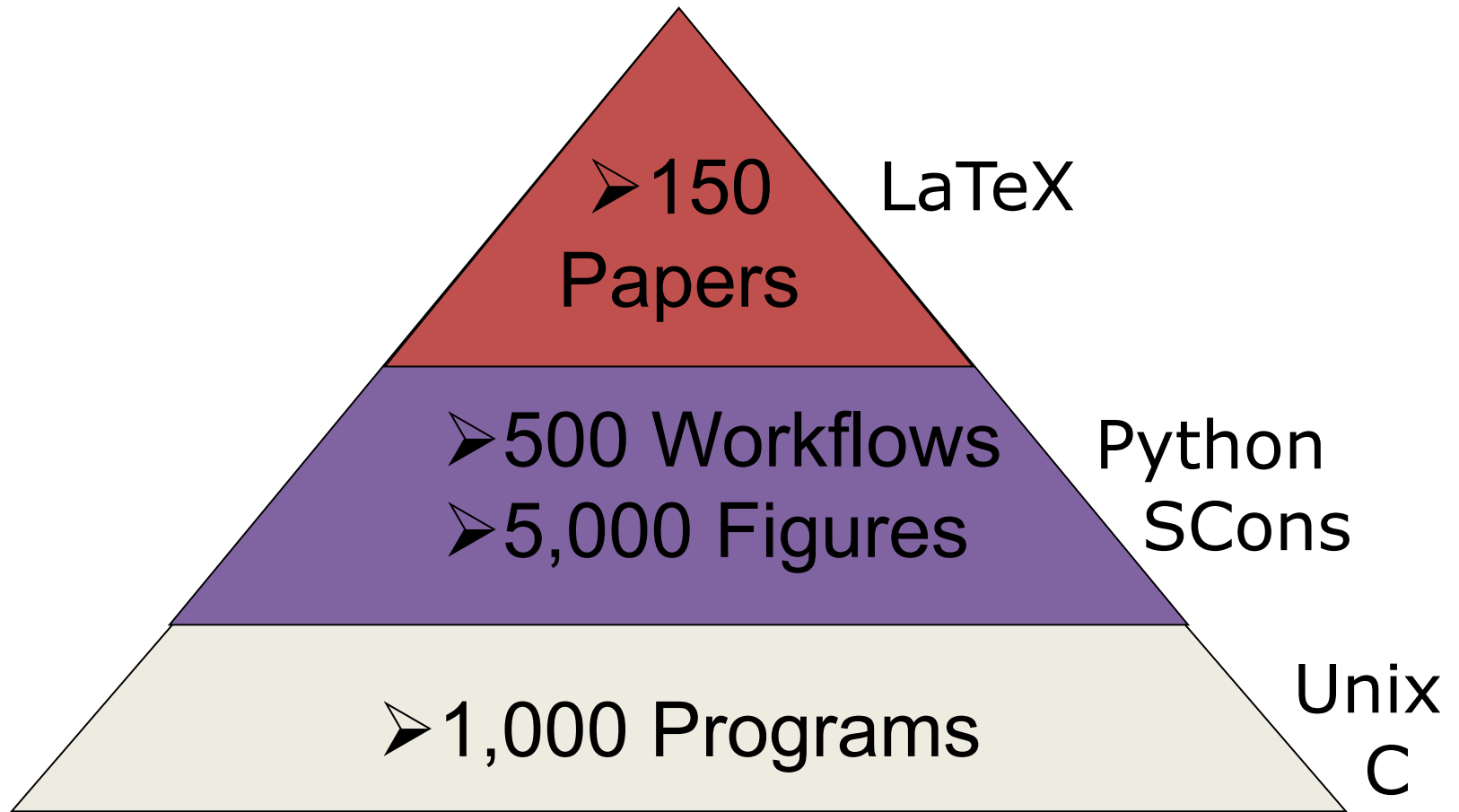
Research Pyramid



Research Pyramid



Research Pyramid



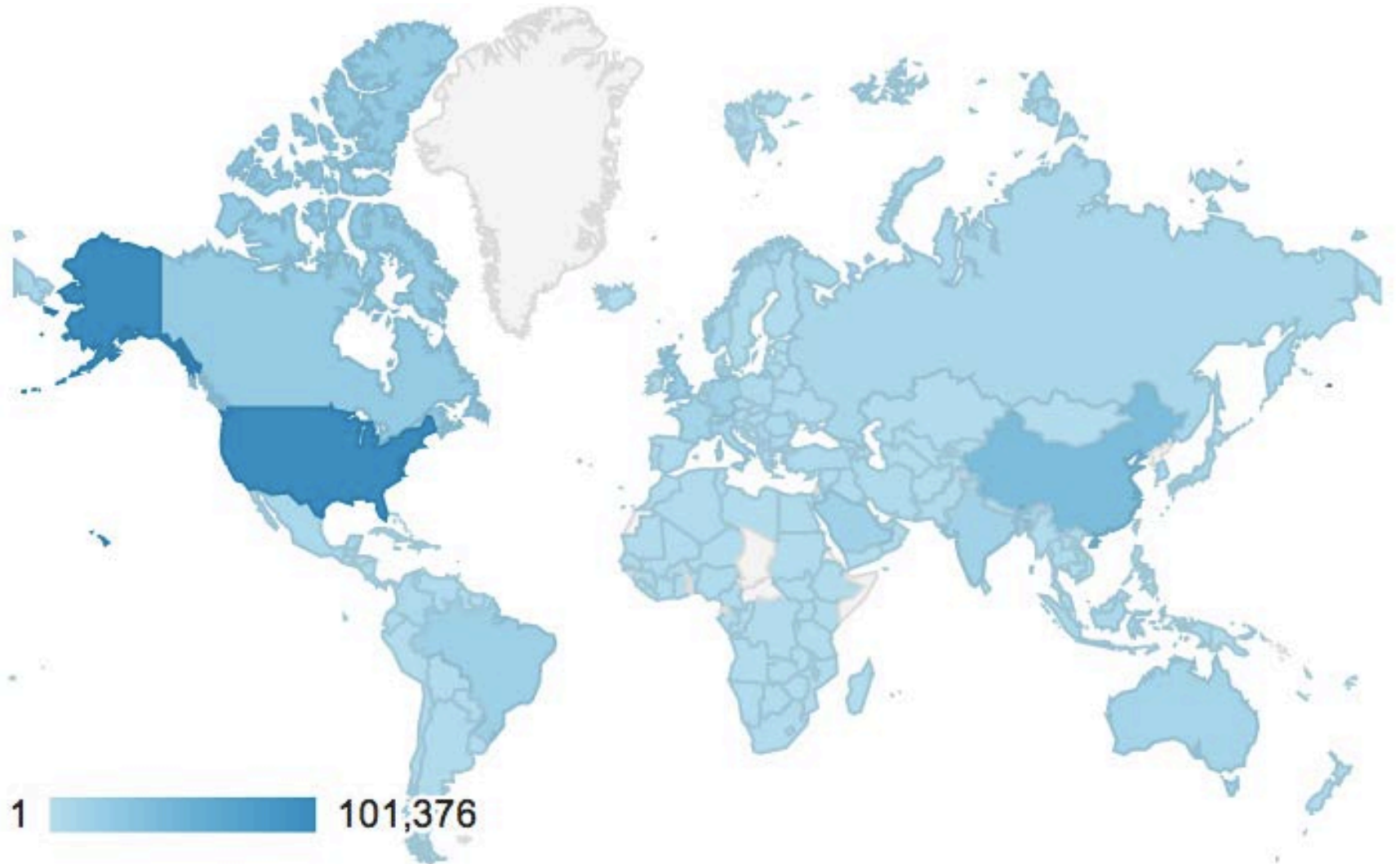


Objectives

- To make computational research efficient
- To make it easy to share computational results
- To promote an open community



Madagascar Website Visits



Contributors

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