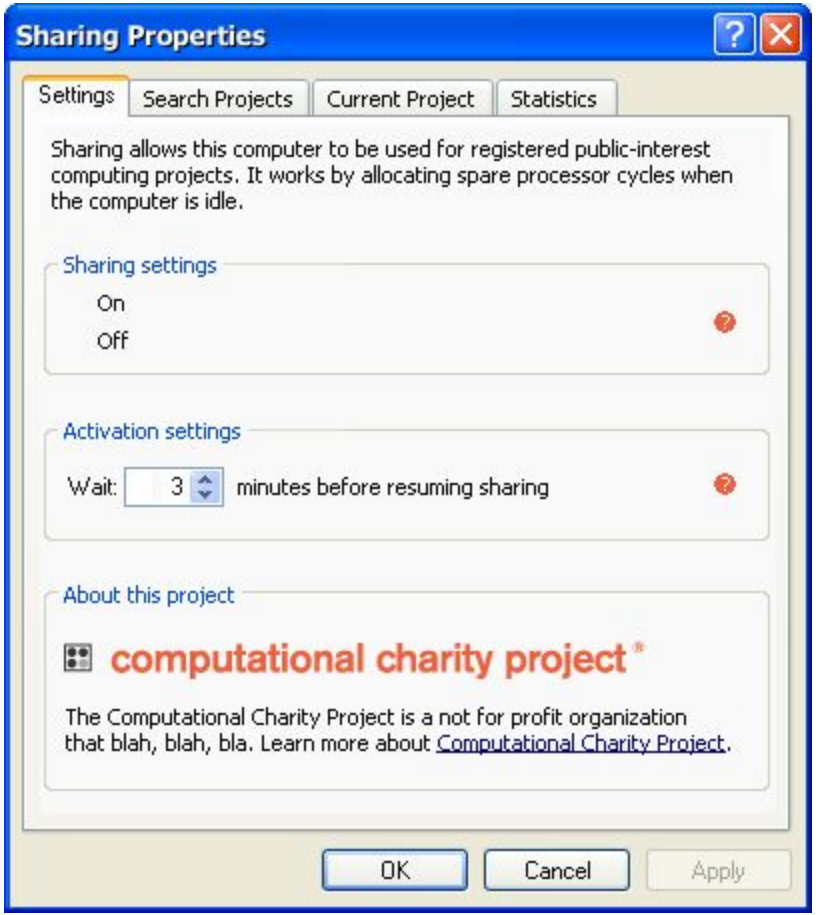
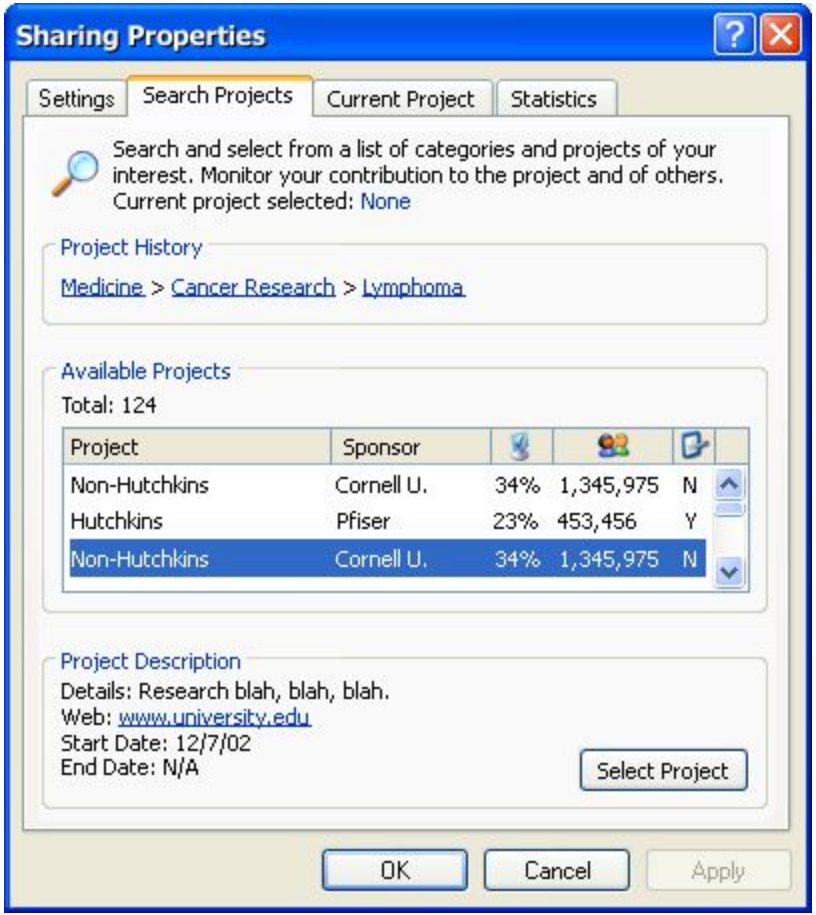
gridrepublic network computing


Control Panel
File Edit View Favorites Tools Help
Back Search Folders
Address Control Panel
Go
Control Panel
Switch to Category View
See Also
Windows Update
Help and Support
Accessibility Options
Add Hardware
Add or Remov...
Administrative Tools
Date and Time
Display
Folder Options
Fonts
Game Controllers
Internet Options
Keyboard
Mail
Mouse
Network Connections
Phone and Modem ...
Power Options
Printers and Faxes
Regional and Language ...
Scanners and Cameras
Scheduled Tasks
Sounds and Audio Devices
Speech
Sharing
Taskbar and Start Menu
User Accounts
Wireless Link

2003


Sharing Properties
Settings
Search Projects
Current Project
Statistics
Sharing allows this computer to be used for registered public-interest computing projects. It works by allocating spare processor cycles when the computer is idle.
Sharing settings
On
Off
Activation settings
Wait: 3 minutes before resuming sharing
About this project
computational charity project
The Computational Charity Project is a not for profit organization that blah, blah, bla. Learn more about Computational Charity Project.
OK
Cancel
Apply

2003


Sharing Properties
Settings
Search Projects
Current Project
Statistics
Search and select from a list of categories and projects of your interest. Monitor your contribution to the project and of others.
Current project selected: None
Project History
Medicine > Cancer Research > Lymphoma
Available Projects
Total: 124
Project
Sponsor
Non-Hutchkins Cornell U. 34% 1,345,975 N
Hutchkins Pfiser 23% 453,456 Y
Non-Hutchkins Cornell U. 34% 1,345,975 N
Project Description
Details: Research blah, blah, blah.
Web: www.university.edu
Start Date: 12/7/02
End Date: N/A
Select Project
OK
Cancel
Apply

2003


gridrepublic volunteer computing
HOME ABOUT PROJECTS GIVING GEAR STATS COMMUNITY HELP
SHARE YOUR COMPUTER TO ADVANCE SCIENCE AND MEDICINE
NEWS
New Hope for Brain Cancer Patients
Processing power volunteered through Rosetta@home made possible design of a promising new brain cancer medicine, "Toca 511", now in clinical trials. Read more.
Try our Facebook App
Developed in partnership with Intel, Progress Thru Processors makes volunteering your computer even easier. (*Winner of a 2012 Facebook Studio Award.
more news
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Login
Developed in Collaboration with BOINC
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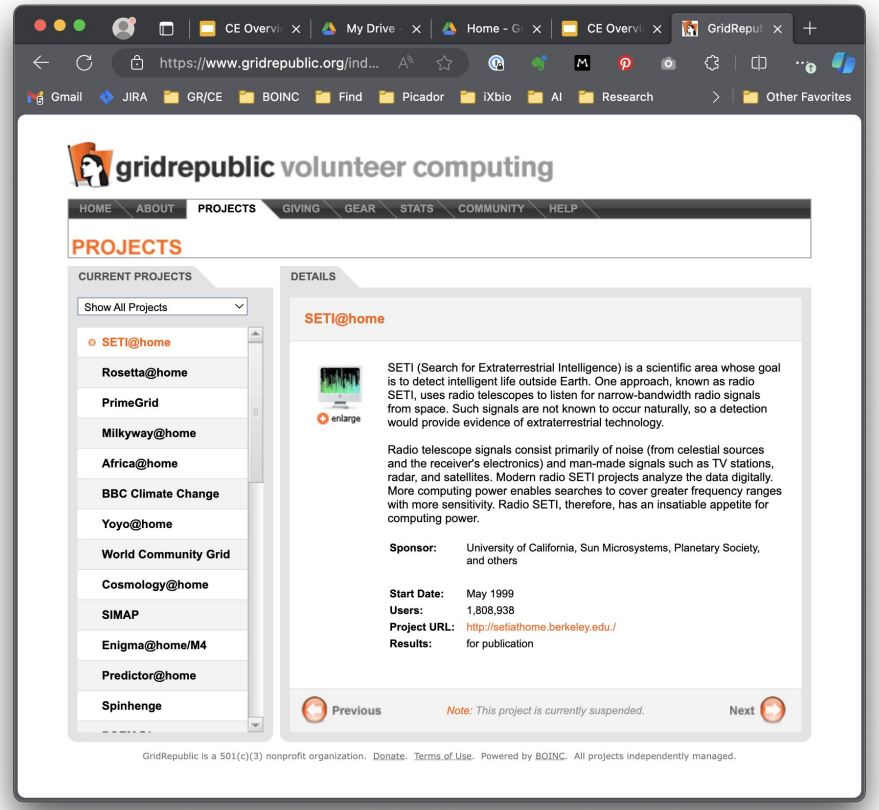
gridrepublic volunteer computing
HOME ABOUT PROJECTS GIVING GEAR STATS COMMUNITY HELP
PROJECTS
CURRENT PROJECTS
Show All Projects
SETI@home
Rosetta@home
PrimeGrid
Milkyway@home
Africa@home
BBC Climate Change
Yoyo@home
World Community Grid
Cosmology@home
SIMAP
Enigma@home/M4
Predictor@home
Spinhenge
DETAILS
SETI@home
enlarge
SETI (Search for Extraterrestrial Intelligence) is a scientific area whose goal is to detect intelligent life outside Earth. One approach, known as radio SETI, uses radio telescopes to listen for narrow-bandwidth radio signals from space. Such signals are not known to occur naturally, so a detection would provide evidence of extraterrestrial technology.
Radio telescope signals consist primarily of noise (from celestial sources and the receiver's electronics) and man-made signals such as TV stations, radar, and satellites. Modern radio SETI projects analyze the data digitally. More computing power enables searches to cover greater frequency ranges with more sensitivity. Radio SETI, therefore, has an insatiable appetite for computing power.
Sponsor: University of California, Sun Microsystems, Planetary Society, and others
Start Date: May 1999
Users: 1,808,938
Project URL: http://setiathome.berkeley.edu/
Results: for publication
Previous
Note: This project is currently suspended.
Next
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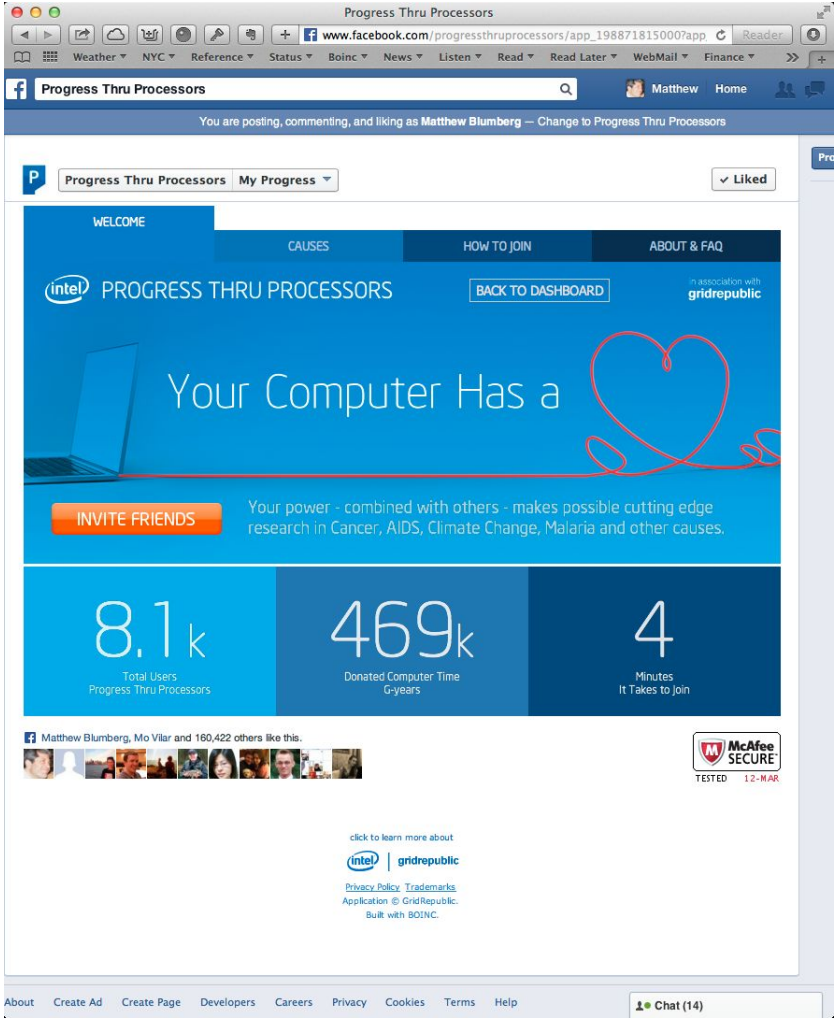
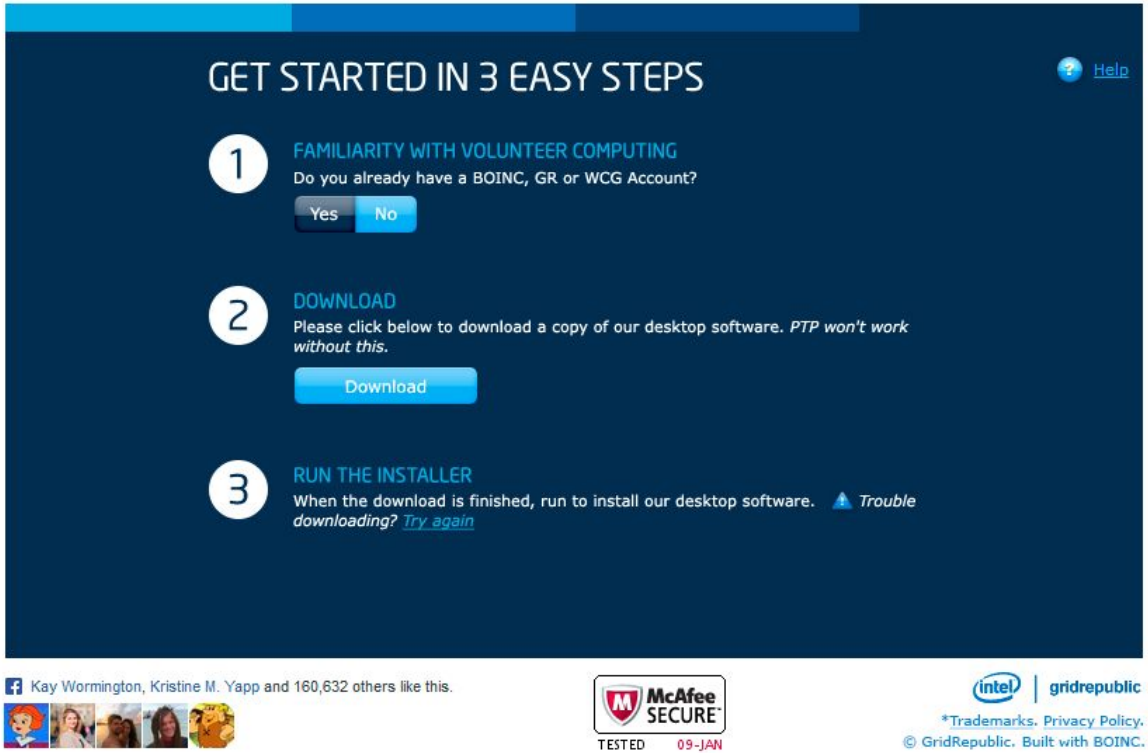
2004


Progress Thru Processors
www.facebook.com/progressthruprocessors/app_198871815000?app
Progress Thru Processors
Matthew
Home
You are posting, commenting, and liking as Matthew Blumberg — Change to Progress Thru Processors
Progress Thru Processors
My Progress
Liked
WELCOME
CAUSES
HOW TO JOIN
ABOUT & FAQ
PROGRESS THRU PROCESSORS
BACK TO DASHBOARD
in association with
gridrepublic
Your Computer Has a
INVITE FRIENDS
Your power - combined with others - makes possible cutting edge research in Cancer, AIDS, Climate Change, Malaria and other causes.
8.1k
Total Users
Progress Thru Processors
469k
Donated Computer Time
G-years
4
Minutes
It Takes to Join
Matthew Blumberg, Mo Vilar and 160,422 others like this.
McAfee SECURE
TESTED 12-MAR
click to learn more about
gridrepublic
Privacy Policy Trademarks
Application © GridRepublic.
Built with BOINC.
About
Create Ad
Create Page
Developers
Careers
Privacy
Cookies
Terms
Help
Chat (14)

2009


GET STARTED IN 3 EASY STEPS
Help
1
FAMILIARITY WITH VOLUNTEER COMPUTING
Do you already have a BOINC, GR or WCG Account?
Yes
No
2
DOWNLOAD
Please click below to download a copy of our desktop software. PTP won't work without this.
Download
3
RUN THE INSTALLER
When the download is finished, run to install our desktop software. Trouble downloading? Try again
Kay Wormington, Kristine M. Yapp and 160,632 others like this.
McAfee SECURE
TESTED 09-JAN
intel | gridrepublic
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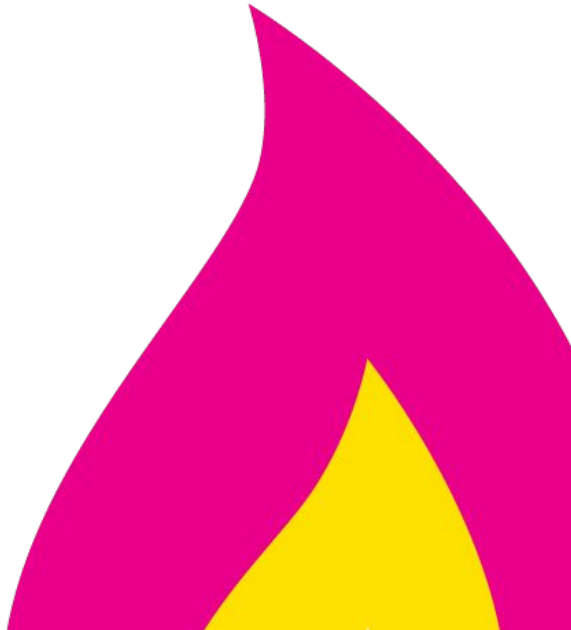
2009

charityengine

changing the world one bit a time



Powered by gridrepublic

charityengine

Marketplace Documentation Grants News Volunteer Try It Log in

Welcome to the Crowdsourced Cloud

A global grid of 500,000+ home PCs plus partner datacenters.

Easily run and manage software containers at scale via Web UI, API, CLI, and Smart Contract.

Ultra-low cost, ultra-low carbon, uses only surplus capacity of participating devices. (lend yours)

Try It Contact Us

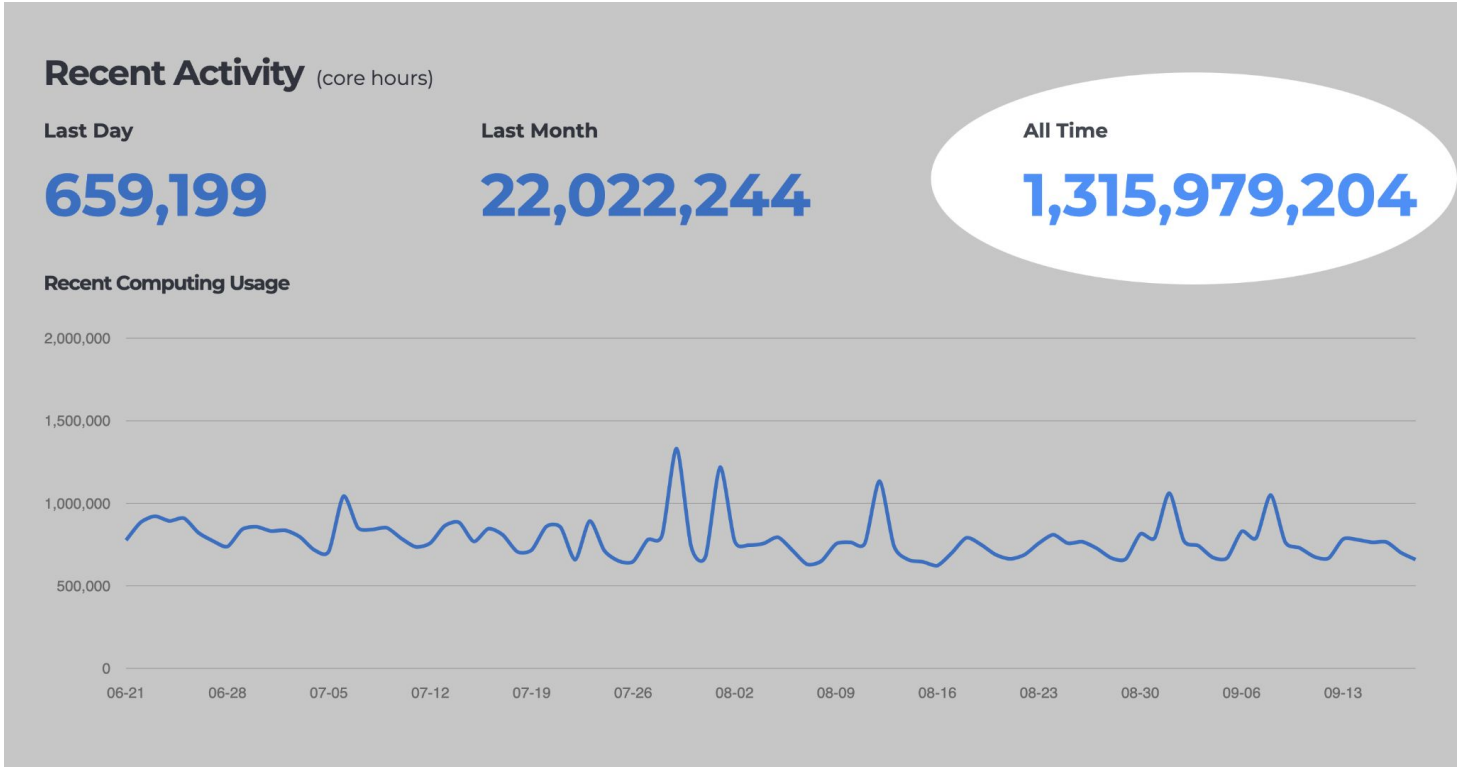
Learn More

The Crowdsourced Cloud

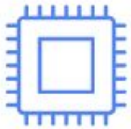
- Harness volunteered computing capacity for commercial use, to generate revenue for charities
- A portion of capacity committed to scientific research

Millions of compute-hours donated to science and medicine

The Crowdsourced Cloud



Grant Program:
Over 1 Billion hours donated to public interest research



1,000,000+
CPU cores

100,000+
GPUs

> 2 Petabyte
of Storage

Resource Standards

Resources are provisioned in "cloud-standard" instances:

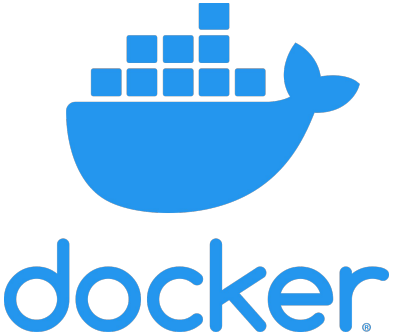
Instance	vCPU	RAM	2-Core Benchmark
AWS c5.large	2	4	1,100
C.2x4	2	4	> 1,000
C.2x2	2	2	> 500

Software Standards

Run any Docker container

or WASM file

(*subject to specs of available instance types)

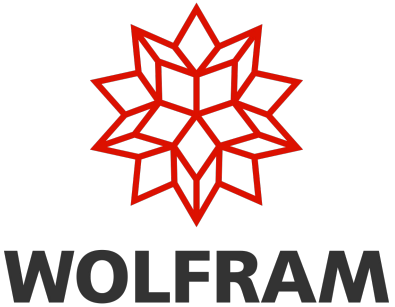


WEBASSEMBLY

App Store

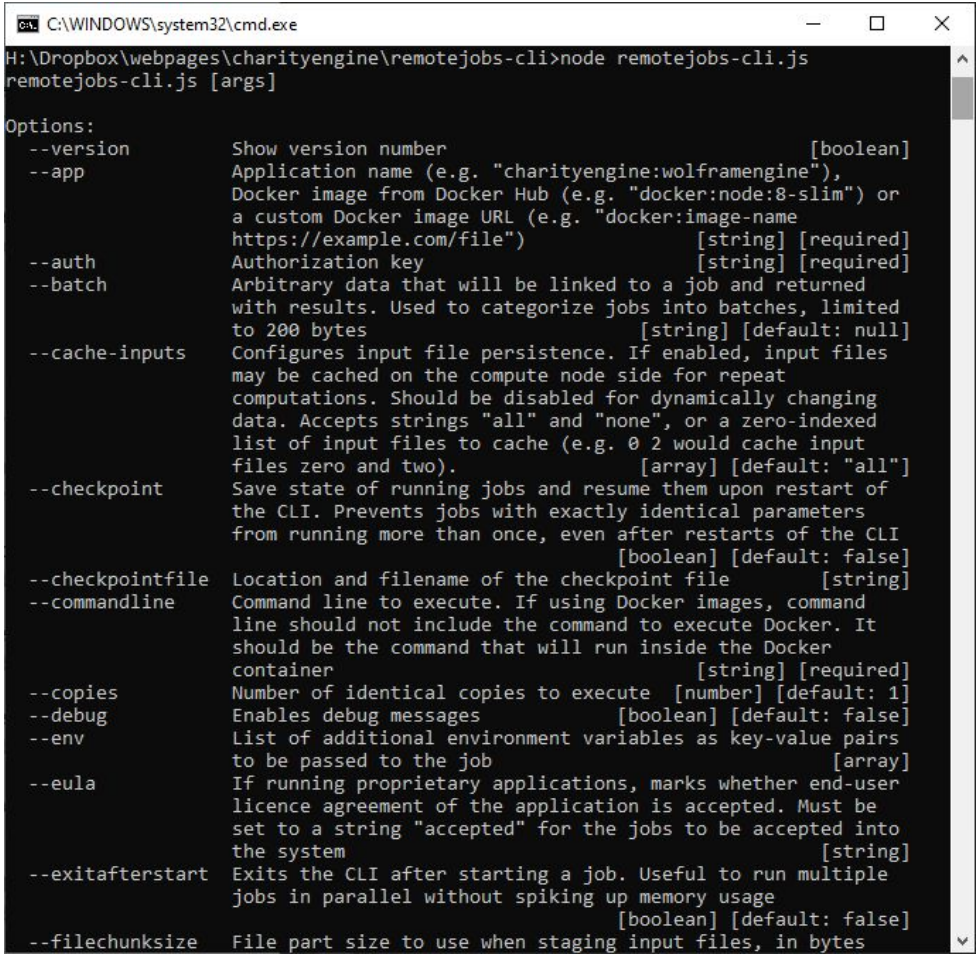
Secure support for
proprietary software

ex. Wolfram Engine / Mathematica
(*First publishing partner)



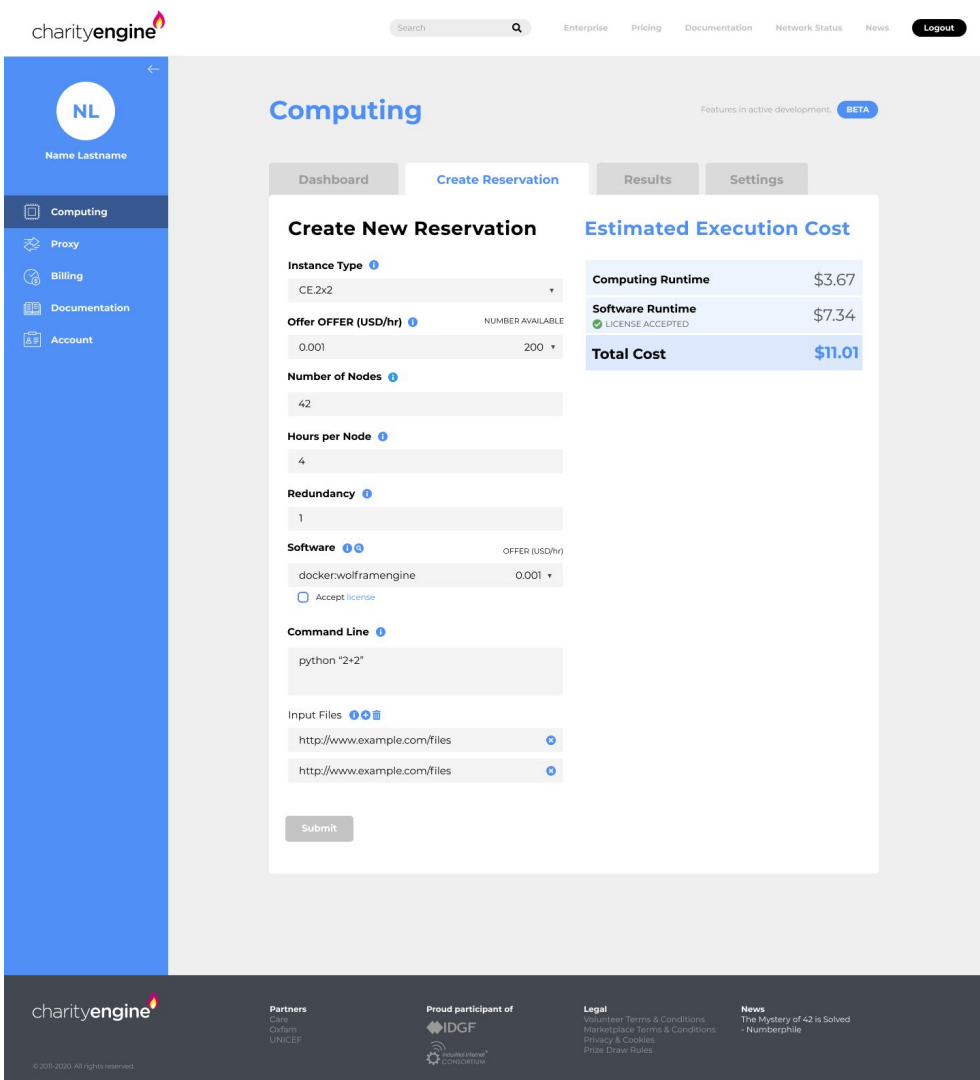
Interface Standards

- API + CLI



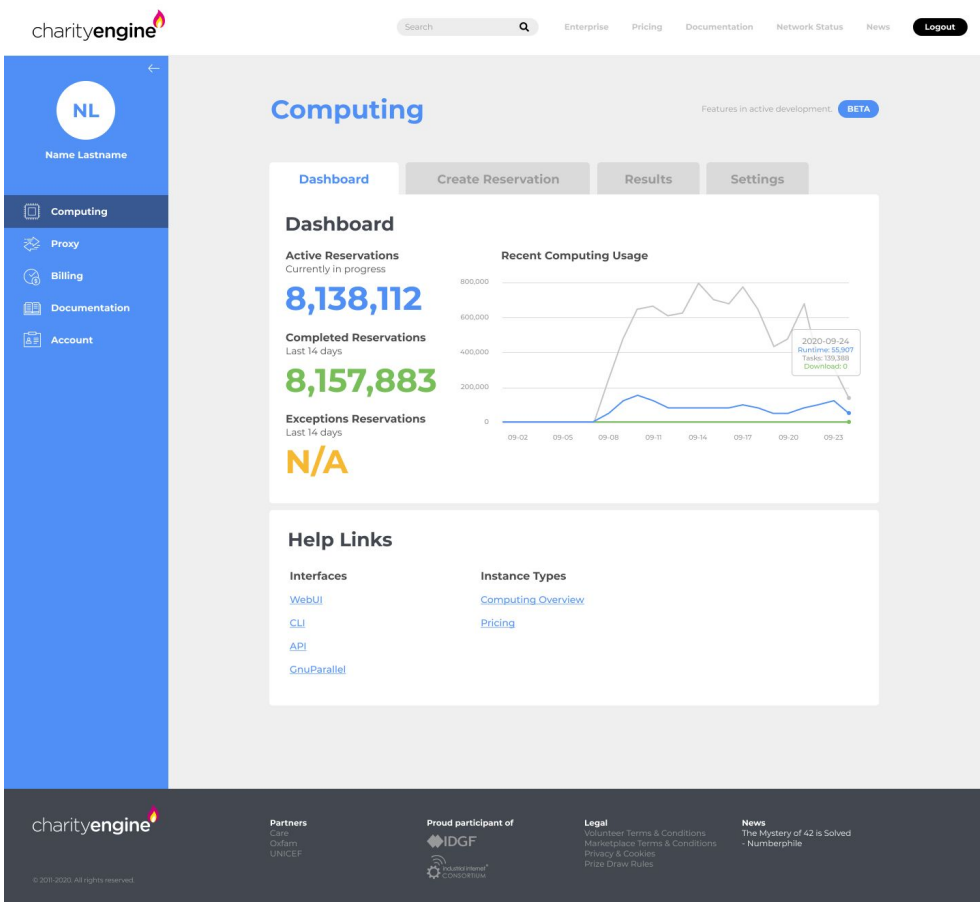
Interface Standards

- API + CLI
- Web UI beta



Interface Standards

- API + CLI
- Web UI beta



Interface Standards

- API + CLI
- Web UI beta
- Lab Notebook

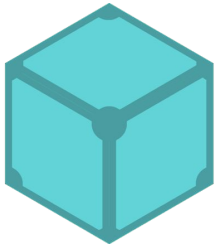
Interface Standards

- API + CLI
- Web UI beta
- Lab Notebook
- Wolfram Language

- Access Charity Engine resources directly from within Wolfram Engine and Mathematica

Interface Standards

- API + CLI
- Web UI beta
- Lab Notebook
- Wolfram Language
- IPFS



IPFS

- Read/write to IPFS

Interface Standards

- API + CLI
- Web UI beta
- Lab Notebook
- Wolfram Language
- IPFS
- Crypto / Smart Contract alpha

- Provision and use compute and storage via Smart Contract *(Initially Ethereum + Filecoin)*
- *Build compute-powered "Smart Oracles", and more*

Use Cases

The Sum of Three Cubes (2019)

$$x^3+y^3+z^3 = \boldsymbol{k}$$

The question, posed in 1954: can any number be represented as the sum of three cubes?

As of 2019 (65 years later), all values below 100 had been solved, *except 42*

Andrew Booker, *Bristol University*
Andrew Sutherland, *MIT*

The Sum of Three Cubes (2019)

$$x^3+y^3+z^3 = \mathbf{42}$$

Solved with >35M CPU core-hours
(*delivered in ~2 months)

X: -80538738812075974
Y: 80435758145817515
Z: 12602123297335631

Also Solved:
3 (*3rd known solution), 165, 579, 906

Andrew Booker, *Bristol University*
Andrew Sutherland, *MIT*

www.scientificamerican.com/article/for-math-fa

Math News - Biggest Math Breakth... | For Math Fans: A Hitchhiker's Guid... | Mathematicians Solve '42' Problem... | The answer to life, the universe, an...

SCIENTIFIC AMERICAN.

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THE SCIENCES

For Math Fans: A Hitchhiker's Guide to the Number 42

Here is how a perfectly ordinary number captured the interest of sci-fi enthusiasts, geeks and mathematicians

By Jean-Paul Delahaye on September 21, 2020

Credit: Christina Hemsley *Getty Images*

Everyone loves unsolved mysteries. Examples include Amelia Earhart's disappearance over the Pacific in 1937 and the daring escape of inmates Frank Morris and John and Clarence Anglin from Alcatraz Island in California in 1962. Moreover our interest holds even if the mystery is based on a joke. Take author Douglas Adams's popular 1979 science-fiction novel *The Hitchhiker's Guide to the Galaxy*, the first in a series of five. Toward the end of the book, the supercomputer Deep Thought reveals that the answer to the "Great Question" of "Life, the Universe and Everything" is "forty-two."

news.mit.edu/2019/answer-life-universe-and-e

Math News - Biggest Math Breakth... | For Math Fans: A Hitchhiker's Guid... | The answer to life, the universe, an... | Mathematicians Solve '42' Problem...

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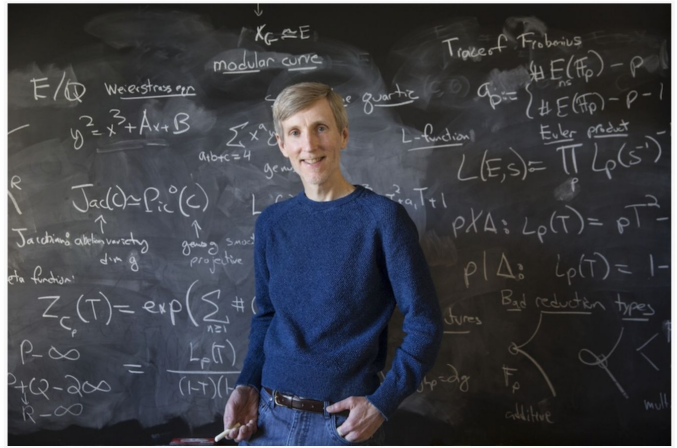
The answer to life, the universe, and everything

Mathematics researcher Drew Sutherland helps solve decades-old sum-of-three-cubes puzzle, with help from "The Hitchhiker's Guide to the Galaxy."

Sandi Miller | Department of Mathematics
September 10, 2019

PRESS INQUIRIES



MIT mathematician Andrew "Drew" Sutherland solved a 65-year-old problem about 42.

Image: Department of Mathematics

charityengine

Volunteer Charities Grants Discussions Wiki News Marketplace **Login | Join**

Welcome to the Planetary Supercomputer

Charity Engine, the crowdsourced cloud platform, is proud to support Stephen Wolfram's groundbreaking research into fundamental physics and mathematics.

Lend your PC to this exciting research and raise money for great causes.

Join

Welcome to Charity Engine

The ingenious Charity Engine app harnesses the "idle time" of millions of home PCs to raise money for charities such as CARE and Oxfam. It also donates millions of compute-hours to cutting-edge research in biology, physics, math, climate change, and many other subjects.

The app is fully automatic, working quietly in the background if the PC is idle, and shutting down instantly if not. The user never has to lift a finger.

Over 5 million downloads.

As seen in:

BBC News · Scientific American · Techcrunch · MIT News
Phys.org · PNAS · New Scientist · HPC Wire
Fast Company · Popular Mechanics · The Register
Daily Mail · Live Science · ExtremeTech · The Next Web
Guardian · Science Alert · Interesting Engineering
How Stuff Works · Boing Boing

Lend your PC **Compute on CE**

Charity Engine + Wolfram

Charity Engine's global grid is now fully integrated with Wolfram Engine / Mathematica, so users can access cheap, green, planetary scale computing directly from within Wolfram Language - just as Stephen himself is doing with his latest math and physics research.

Charity Engine is delighted to be an official partner of both Wolfram Research and Wolfram Blockchain Labs, and to have Stephen Wolfram as an advisor.

Run your Wolfram Engine jobs on CE

Stephen's Research

In the summer of 1921, a young mathematician named Emil Post felt he was on the verge of systematically "solving" all of mathematics - that is, of developing a method for reasoning generally about wide ranges of math problems. The key, he thought, was a class of string transformation systems he dubbed "tag" systems - but one particular such system, defined by the replacement rules (0->00, 1->1101), resisted all his attempts to characterize its behavior.

A century later, modern computers can evaluate tag systems hundreds of trillions of times faster than Post could by hand, and distributed computing environments like Charity Engine allow tens of thousands of simultaneous cores to be utilized for such a task. The Wolfram Post Project aims to pick up where Emil Post left off, searching for patterns and answers in the computational universe of tag systems. Read More.

Lend your PC

charityengine

Charities
Care
Oxfam
Sightsavers

Proud participant of
IDGF
GOV.UK

Legal
Terms & Conditions
Privacy & Cookies
Prize Draw Rules

Contact
Contact Us

Superpermutations

Greg Egan

50,441,815 hrs

Conway's Game of Life

Darren Li / Catagolue

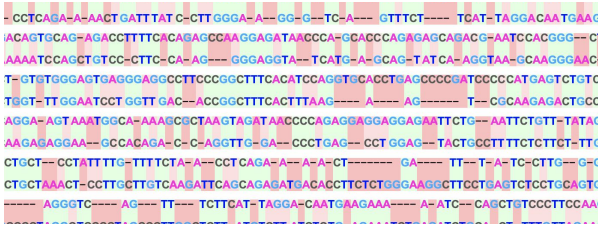
27,585,302 hrs

Fungal Data Index (2019)

Sequence search is messy - and compute-intensive

Goal: Search massively large library of biological sequence data for 10,400 fungal species, *to create an index* of fungi in the dataset

Fungal Data Index (2019)



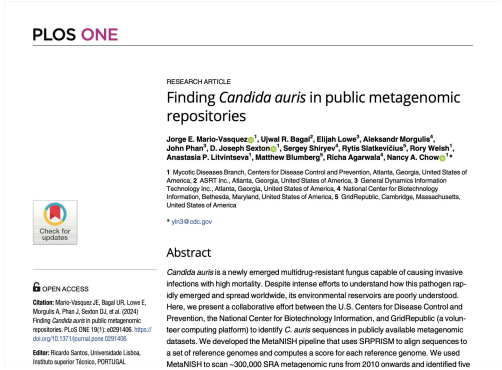
Sequence search is messy - and compute-intensive

- 40 TB of sequence data at 3x redundancy
- Distributed across ~375,000 devices
- High *Compute-to-Storage* ratio (1 CPU per 110 MB)
- (*at one point, 0.1% of all internet traffic in Lithuania)

Biosurveillance (2023)

Goal: Search sequence data from environmental samples worldwide for pathogens of concern to CDC – *daily*

Service live *as of 2023-04-01*



PLOS ONE

RESEARCH ARTICLE

Finding *Candida auris* in public metagenomic repositories

Jorge E. Mario-Vasquez[1], Ujwal R. Bagal[2], Elijah Lowe[3], Aleksandr Morgulis[4], John Phan[3], D. Joseph Sexton[1], Sergey Shiryev[4], Rytis Slatkevičius[5], Rory Welsh[1], Anastasia P. Litvintseva[1], Matthew Blumberg[6], Richa Agarwala[4], Nancy A. Chow[1]*

1 Mycotic Diseases Branch, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, 2 ASRT Inc., Atlanta, Georgia, United States of America, 3 General Dynamics Information Technology Inc., Atlanta, Georgia, United States of America, 4 National Center for Biotechnology Information, Bethesda, Maryland, United States of America, 5 GridRepublic, Cambridge, Massachusetts, United States of America

* yhr3@cdc.gov

Check for updates

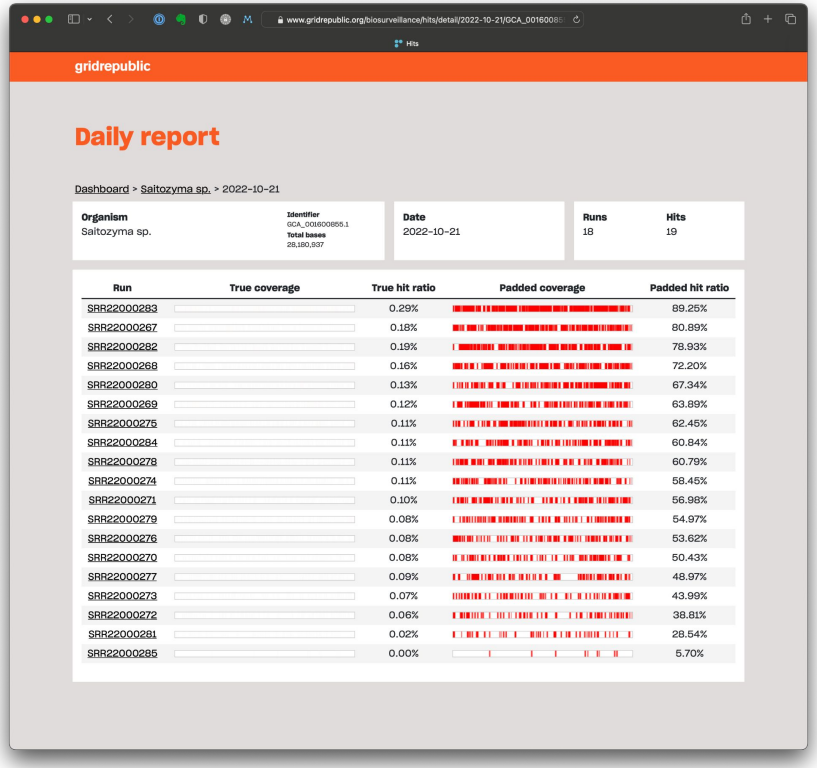
OPEN ACCESS

Citation: Mario-Vasquez JE, Bagal UR, Lowe E, Morgulis A, Phan J, Sexton DJ, et al. (2024) Finding *Candida auris* in public metagenomic repositories. PLoS ONE 19(1): e0291406. https://doi.org/10.1371/journal.pone.0291406

Editor: Ricardo Santos, Universidade Lisboa, Instituto superior Técnico, PORTUGAL

Abstract

Candida auris is a newly emerged multidrug-resistant fungus capable of causing invasive infections with high mortality. Despite intense efforts to understand how this pathogen rapidly emerged and spread worldwide, its environmental reservoirs are poorly understood. Here, we present a collaborative effort between the U.S. Centers for Disease Control and Prevention, the National Center for Biotechnology Information, and GridRepublic (a volunteer computing platform) to identify *C. auris* sequences in publicly available metagenomic datasets. We developed the MetaNISH pipeline that uses SRPRISM to align sequences to a set of reference genomes and computes a score for each reference genome. We used MetaNISH to scan ~300,000 SRA metagenomic runs from 2010 onwards and identified five



www.gridrepublic.org/biosurveillance/hits/detail/2022-10-21/GCA_0016008

Hits

gridrepublic

Daily report

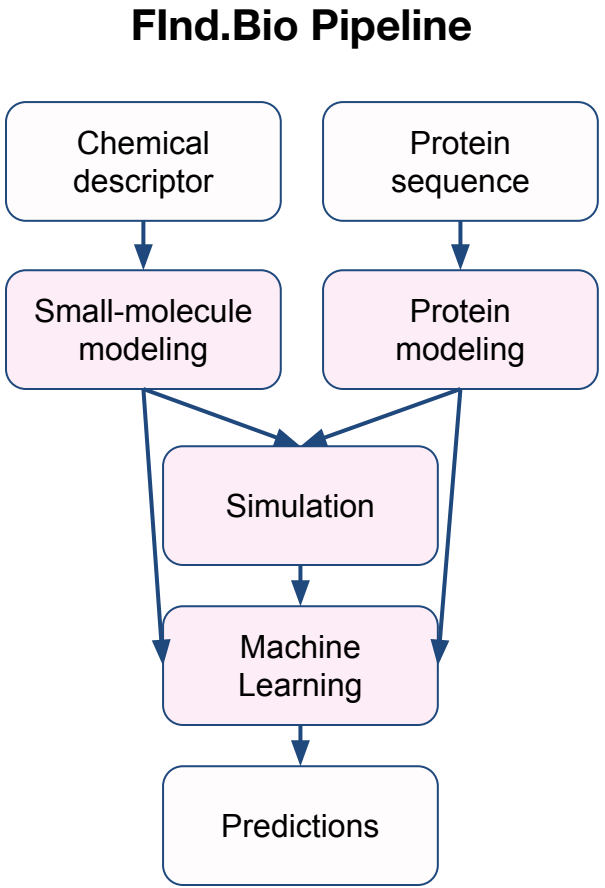
Dashboard > Saltozyma sp. > 2022-10-21

Organism	Identifier	Date	Runs	Hits
Saltozyma sp.	GCA_001600855.1 Total bases 28,180,937	2022-10-21	18	19

Run	True coverage	True hit ratio	Padded coverage	Padded hit ratio
SRR22000283		0.29%		89.25%
SRR22000267		0.18%		80.89%
SRR22000282		0.19%		78.93%
SRR22000268		0.16%		72.20%
SRR22000280		0.13%		67.34%
SRR22000269		0.12%		63.89%
SRR22000275		0.11%		62.45%
SRR22000284		0.11%		60.84%
SRR22000278		0.11%		60.79%
SRR22000274		0.11%		58.45%
SRR22000271		0.10%		56.98%
SRR22000279		0.08%		54.97%
SRR22000276		0.08%		53.62%
SRR22000270		0.08%		50.43%
SRR22000277		0.09%		48.97%
SRR22000273		0.07%		43.99%
SRR22000272		0.06%		38.81%
SRR22000281		0.02%		28.54%
SRR22000285		0.00%		5.70%

Find.Bio

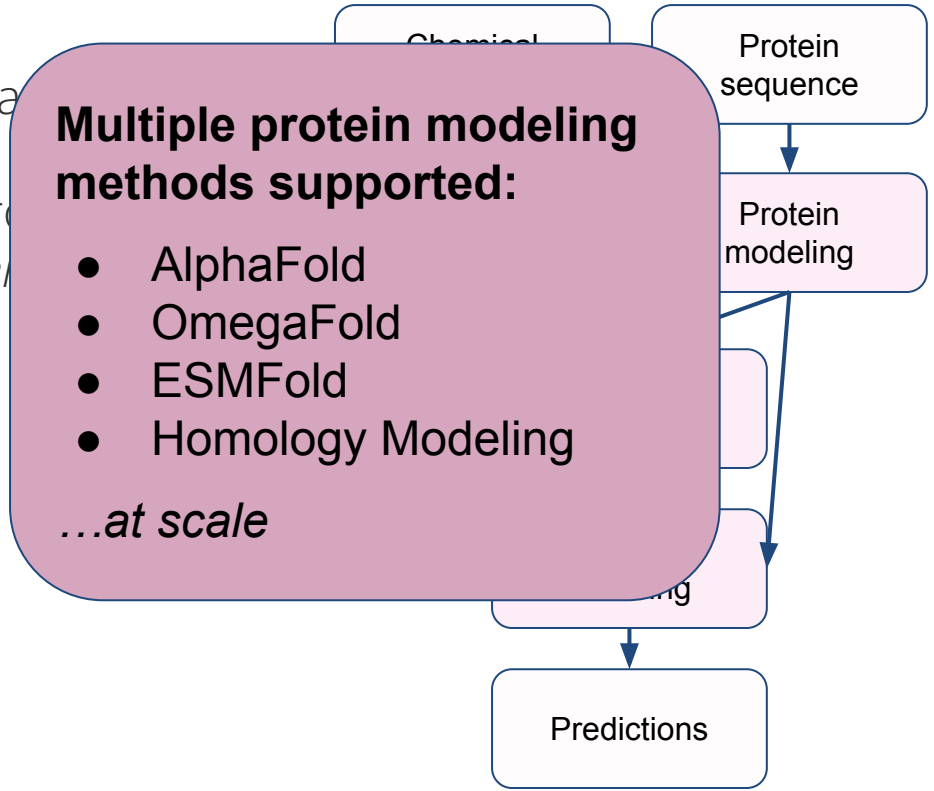
Goal: Map the "interactome" of a cell or organism, ie identify which molecules interact with which proteins – *a powerful tool for drug discovery*



Find.Bio

Goal: Map the "interactome" of a
or organism, ie identify which
molecules interact with which pr
– *a powerful tool for drug discover*

FInd.Bio Pipeline



Multiple protein modeling methods supported:

- AlphaFold
- OmegaFold
- ESMFold
- Homology Modeling

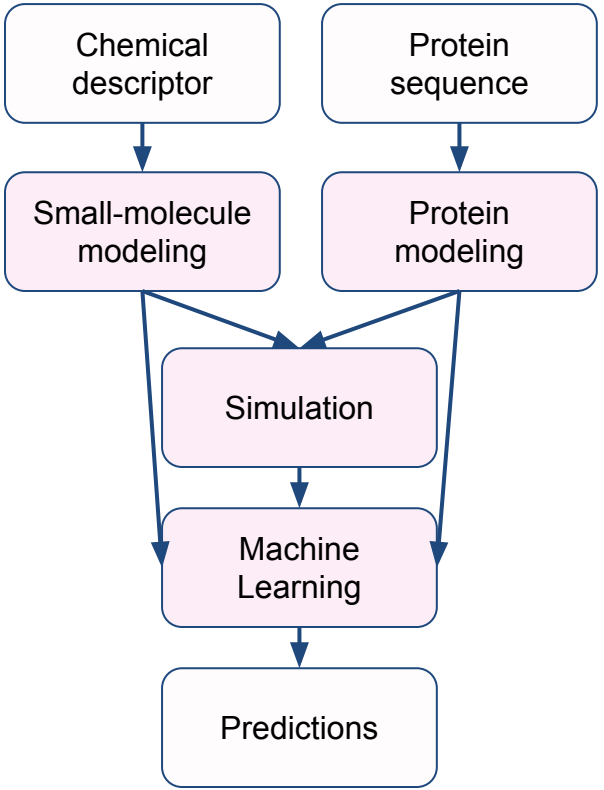
…at scale

Find.Bio

Scale

- Daily peaks
  - > 1M daily jobs
  - > 160,000 daily core-hours
- ***Goal:*** near-interactive supercomputing (*on a distributed network)

FInd.Bio Pipeline



Energy Management

Scheduling Compute Jobs for Energy Efficiency

1. Context and Objectives

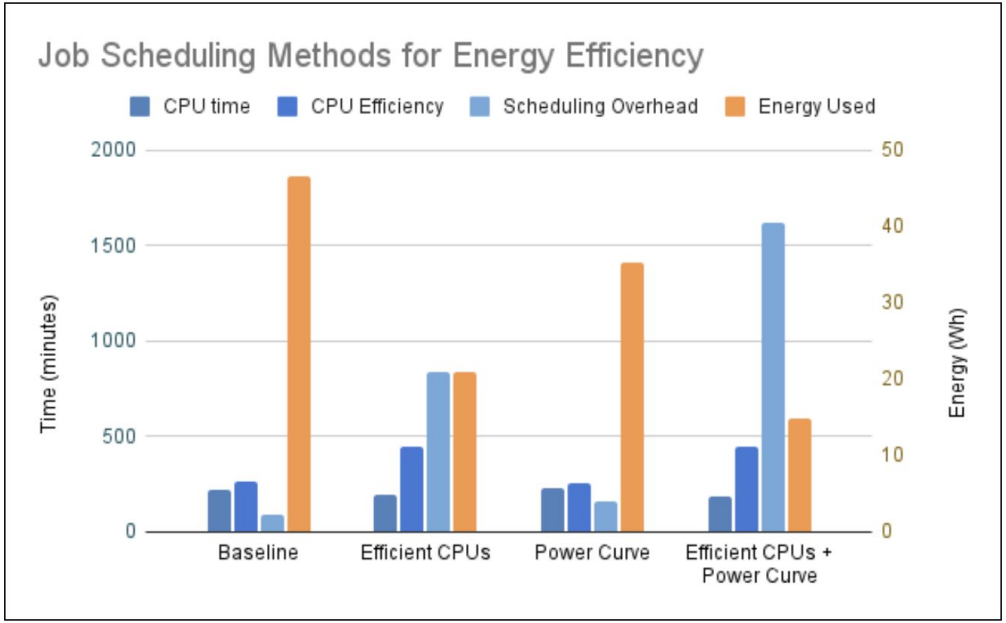
Charity Engine is a computation network that distributes jobs to edge nodes from a central server based on the suitability of each node to complete a given task. Standard job scheduling considers the hardware and software capabilities of nodes and gives jobs to the first available nodes that meet the requirements.

For this project, the Charity Engine network has been modified to additionally consider power, performance, and usage metrics, to enable the scheduler to optimize for energy efficiency. A subset of the network has been updated for use in testing a range of strategies to meet this objective.

1.1. Definition of the Device Pool

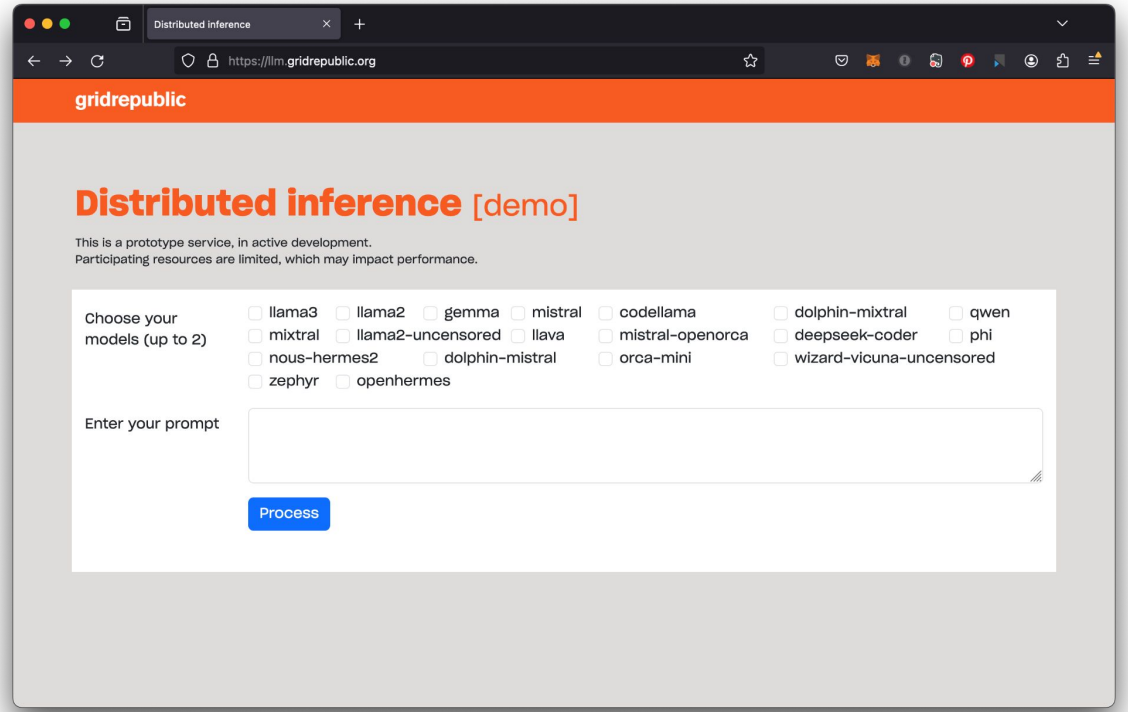
A selection of 10 common CPU models was made by analyzing active nodes in the Charity Engine network. These CPU models have known characteristics of power usage and computational performance and are present in sufficient quantity in the network to provide statistical power to the results.

Energy efficiency in computation can be defined as a ratio of speed over power consumption. For these 10 processors, speed is measured by a single-threaded benchmark that calculates the floating point operations per second (FLOPS) that a core can compute. The known power rating is divided by the number of cores



gridrepublic network computing

Distributed Inference: GridRepublic LLM



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