

Research Software Directory

what is it? why did we built it? what's in it for you?

Jason Maassen¹, Christian Meeßen²

1) Netherlands eScience Center

2) eScience Zentrum, Deutsches GeoForschungsZentrum Potsdam GFZ

19/09/2022





netherlands **eScience** center

National center for the development
and application of research software
(in the Netherlands)

Founded in 2011 by NWO and SURF

Science Park Amsterdam



How we work:

- We are a funder (in kind) of Dutch research projects
- Research Software development plays an essential role in our projects we fund
- We provide Research Software Engineers (RSEs) to these projects
- Together with the researchers, the RSEs translate research questions into software
- Broad impact and reuse of software is important to us
- Open science, open source, open data, open access, ...

~200 projects
(on many different topics)

Astronomy: fast radio bursts

In collaboration with ASTRON & UvA



nature

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Article | [Published: 25 August 2021](#)

Chromatic periodic activity down to 120 megahertz in a fast radio burst

[Inés Pastor-Marazuela](#), [Liam Connor](#), [...] [Stefan J. Wijnholds](#)

[Nature](#) **596**, 505–508 (2021) | [Cite this article](#)

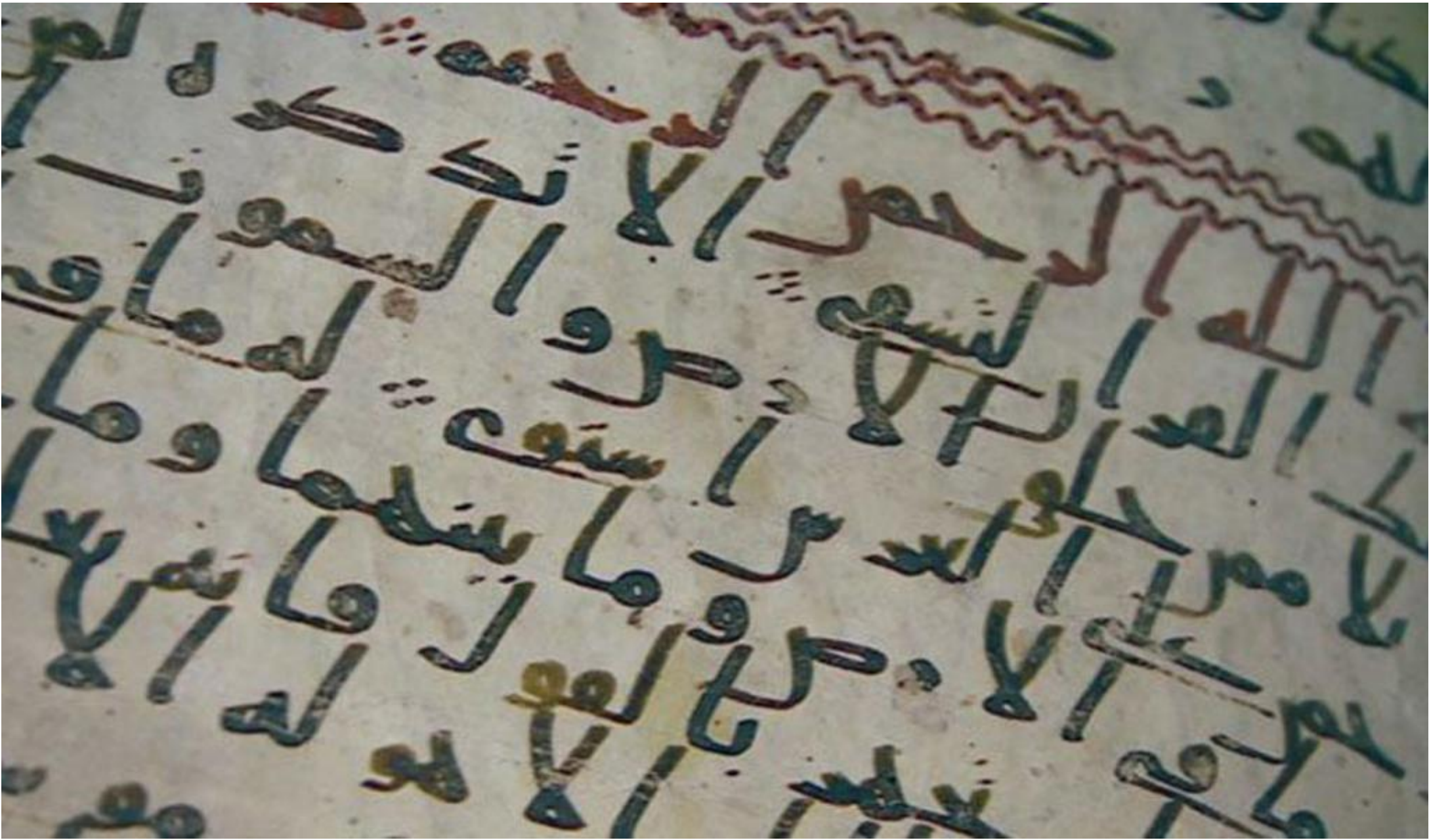
1349 Accesses | **161** Altmetric | [Metrics](#)

Abstract

Fast radio bursts (FRBs) are extragalactic astrophysical transients¹ whose brightness requires emitters that are highly energetic yet compact enough to produce the short, millisecond-duration bursts. FRBs have thus far been detected at frequencies from 8 gigahertz (ref. ²) down to 300 megahertz (ref. ³), but lower-frequency emission has

Digital Humanities: Arabic-Islamic corpus

In collaboration with Utrecht University



The Why of the Research Software Directory

In 2011 very little credit was given to research software or the people developing it, and software was hardly shared or reused..

How do we show the impact our software has had on research to our funders?

How do we stimulate re-use and collaboration on research software?

How do we give RSEs credit for their work?

[illegible]

FAIR FOR SOFTWARE:
Reproducible Open Science ⑦

Software solution to
their scientific problem.

Research Software Directory

2017-now



(F)

Search
Cite.

Quality + trust.

RANKING

Open
API

(I)

metadata:
archive
index
links

ROI
Statistics.
impact.

Funders
Policy makers

(6)

(5)

Research Groups /
Institutes / projects

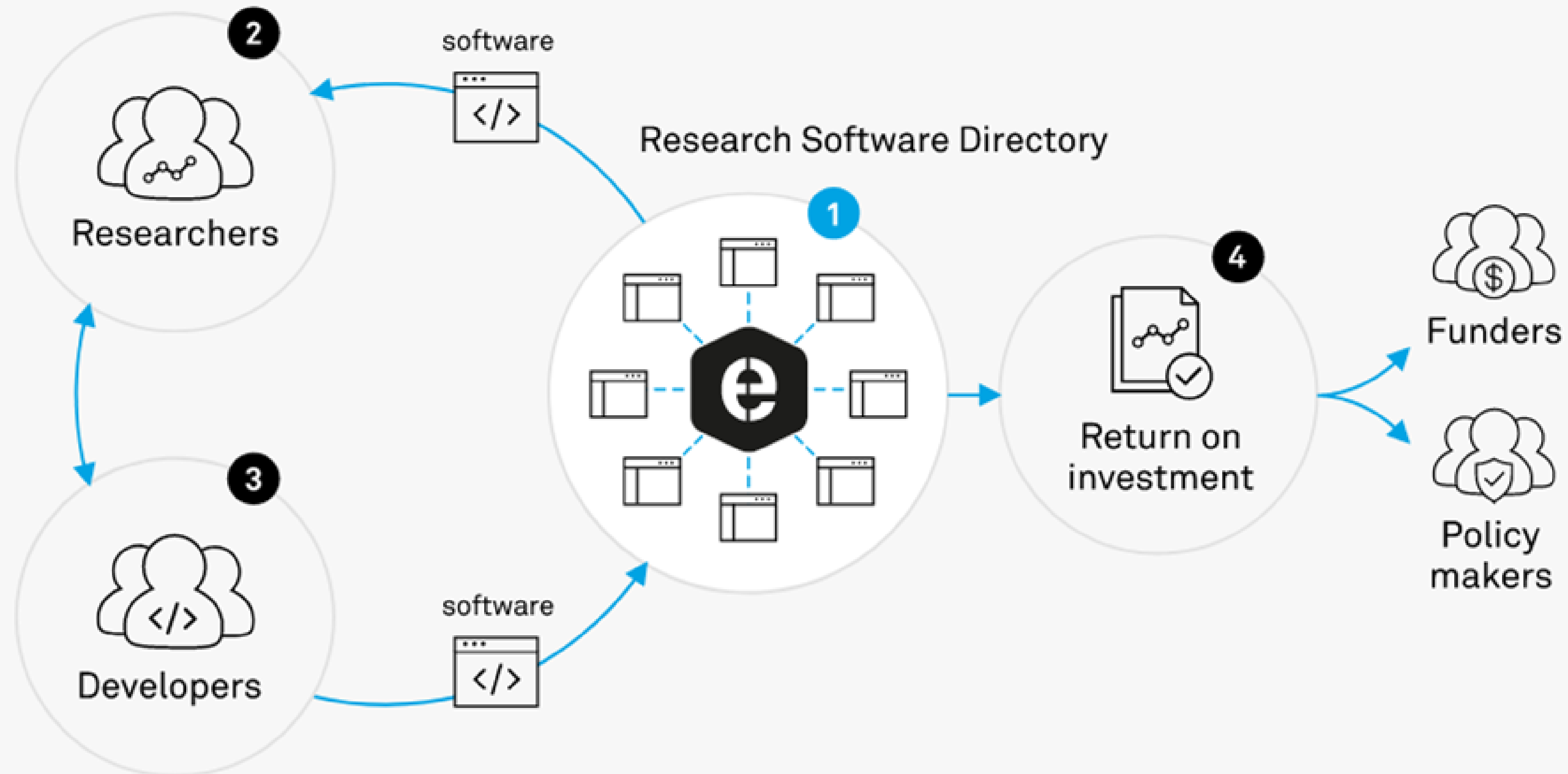
Software
+ metadata

(A)

Citable
visibility

re-use (R)

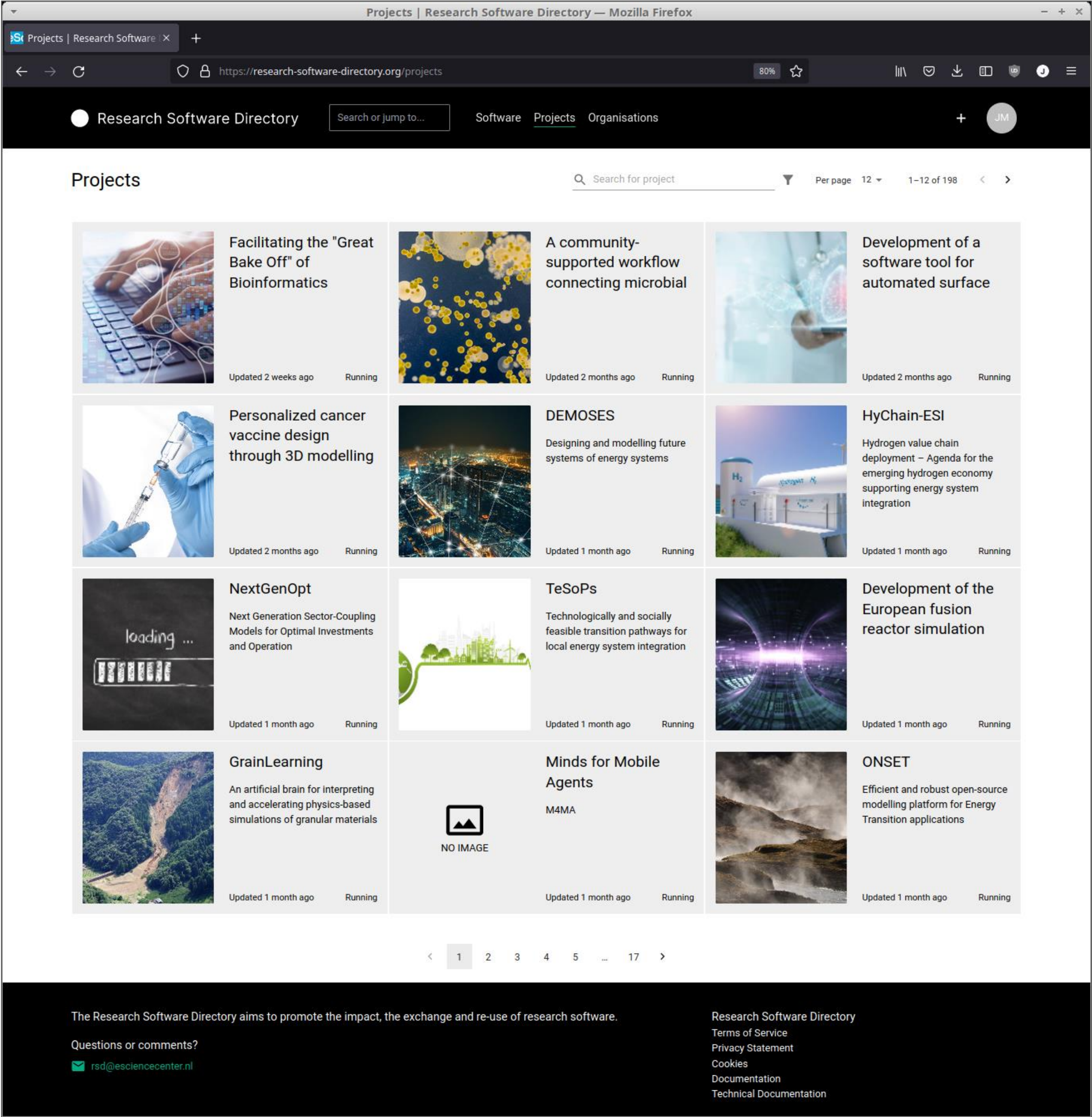
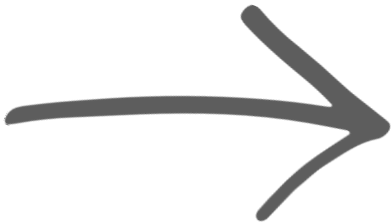
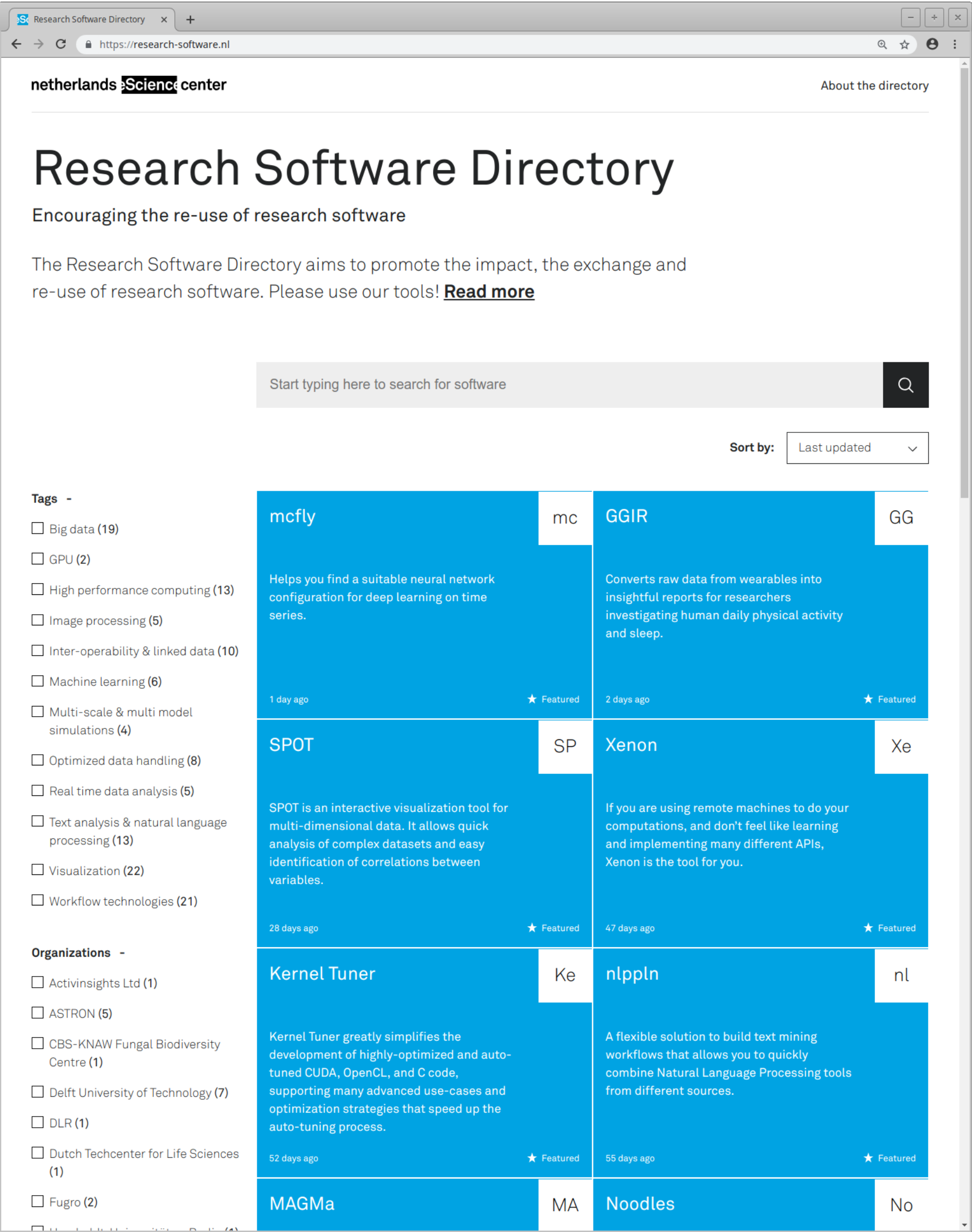
Credits / impact / community building.



Target Groups:

- RSEs: showcase software, show impact, make software findable
- Researchers: find software, judge relevance, proper citation information
- Institutes, funders, policy makers: insight into impact of research software & RSEs

Research Software Directory (evolution from 2017 to 2022)



2017: self hosted, eScience Center only

2022: online service, joined development with HIFIS



repository URL
commit activity
prog. languages
README.md
license



name
description
relevant IDs
testimonials
roles

create software &
project pages



organization ID
proper name
website URL



contributor ID
proper name
affiliation

Connecting Research
and Researchers

concept DOI
version DOIs
contributors
citation data
keywords
license



output DOI
metadata



Generated webpages

Research Software Directory

Search or jump to...

Software Projects Organisations

Kernel Tuner

2913

mentions contributors

Kernel Tuner greatly simplifies the development of highly-optimized and auto-tuned CUDA, OpenCL, and C code, supporting many advanced use-cases and optimization strategies that speed up the auto-tuning process.

Get started

1096 commits (Last commit = 2 weeks ago)

Cite this software

DOI: 10.5281/zenodo.6573849

0.4.2

Choose a reference manager format

Download file

What Kernel Tuner can do for you

- Allows developers to easily unit test and auto-tune GPU code
- Generic auto-tuning of user-defined parameters for CUDA, OpenCL, and C kernels
- Supports more than 20 different search optimization methods to speedup tuning
- Successfully used in 10+ different eScience projects, across various disciplines

Keywords

- Big data
- GPU
- High performance computing
- Multi-scale & multi-model simulations
- Optimized data handling
- Real time data analysis

Programming language

- Python: 99%
- Cuda: 1%

License

- Apache-2.0

Source code

Participating organisations

ASTRON

CWI

netherlands eScience center

Mentions

Kernel Tuner tutorial at Supercomputing 2021

Author(s): Ben van Werkhoven

Published in 2021

Writing Testable GPU Code

Author(s): Ben van Werkhoven

Published in 2018

Computer programs

Conference papers

Journal articles

Presentations

Video recordings

Testimonials

"With Kernel Tuner, we were able to accelerate our CUDA kernels by a factor of 10 in just a few weeks"

Chiel van Heerwaarden, Wageningen University & Research

Contributors

Alessio Sciocco

Ben van Werkhoven

Bram Veenboer

Felipe Zapata

Floris-Jan Willemsen

Inti Pelupessy

Jisk Attema

Johannes Hidding

Nicolas Renaud

Patrick Bos

Richard Schoonhoven

Stijn Heldens

Willem Jan Palenstijn

Ben van Werkhoven

CONTACT PERSON

Ben van Werkhoven

Mail Ben

Related projects

CORTX

CHEOPS

<https://research-software-directory.org>
<https://helmholtz.software>

software pages

project pages

organization
pages

impact
metrics
(TODO)

See more details

Tweeted by 3838
Blogged by 24
On 895 Facebook pages
Mentioned in 54 Google+ posts
Picked up by 28 news outlets
Reddited by 15
5 readers on Mendeley
0 readers on CiteULike

Research Software Directory

Search or jump to...

Software Projects Organisations

Organisations

Search for organisation

Per page: 12 1-12 of 183

<div>Netherlands eScience Center</div> <div>netherlands eScience center</div> <div>183 software packages</div> <div>198 research projects</div>	<div>Vrije Universiteit Amsterdam</div> <div>VU</div> <div>25 software packages</div> <div>29 research projects</div>	<div>University of Amsterdam</div> <div>UNIVERSITY OF AMSTERDAM</div> <div>16 software packages</div> <div>34 research projects</div>
<div>Delft University of Technology</div> <div>TU Delft</div> <div>11 software packages</div> <div>22 research projects</div>	<div>Utrecht University</div> <div>Utrecht University</div> <div>12 software packages</div> <div>20 research projects</div>	<div>Radboud University Nijmegen</div> <div>Radboud Universiteit</div> <div>17 software packages</div> <div>12 research projects</div>
<div>Wageningen University & Research</div> <div>WAGENINGEN UNIVERSITY</div> <div>12 software packages</div> <div>15 research projects</div>	<div>University of Twente</div> <div>UNIVERSITY OF TWENTE</div> <div>6 software packages</div> <div>16 research projects</div>	<div>ASTRON</div> <div>ASTRON</div> <div>9 software packages</div> <div>11 research projects</div>
<div>SURFsara</div> <div>SURF SARA</div> <div>4 software packages</div> <div>13 research projects</div>	<div>University of Groningen</div> <div>university of groningen</div> <div>4 software packages</div> <div>11 research projects</div>	<div>CWI</div> <div>CWI</div> <div>1 software package</div> <div>13 research projects</div>

The Research Software Directory aims to promote the impact, the exchange and re-use of research software.

Research Software Directory

Terms of Service

Privacy Statement

Cookies

Documentation

Technical Documentation

Research Software Directory

Search or jump to...

Software Projects Organisations

Googling the cancer genome

Identification and prioritization of cancer-causing structural variations in whole genomes

Image placeholder

Project description

Keywords

High performance computing

Machine learning

Workflow technologies

Participating organisations

netherlands eScience center

CWI

Impact

Journal articles

Output

Portable HPC workflows with Snakemake, Conda, and Xenon

Author(s): Jannik M. Spaak

Published in 2018

Teaching machines to recognize cancer

Author(s): Netherlands eScience Center

Published in 2017

Computer programs

Conference papers

Dataset

Journal articles

Presentations

Reports

Team

Arnold Kuzniat

Jeroen de Ridder

Lara Ridder

Sorja Georgievskia

Lars Ridder

CONTACT PERSON

Lars Ridder

Mail Lars

Related projects

Integrated omics analysis for small molecule-mediated host-microbiome interactions

DeepRank

Data quality in a distributed learning environment

TraIT

Related tools

mefly

sv-callers

sv-channels

sv-gen

Xenon

Xenon command line interface

RSD

Search or jump to...

Software Projects Organisations

+

CM

Palladio

VIEW

SAVE

1

Information

Required information

2

Contributors

Required information

3

Organisations

Optional information

4

Mentions

Optional information

5

Testimonials

Optional information

6

Related topics

Optional information

7

Maintainers

Optional information

Software information

RSD path

palladio

Use letters, numbers and dash "-". Other characters are not allowed.

8/200

Name

Palladio

Provide software name to use as a title of your software page.

8/200

Short description

Palladio is a software architecture simulation approach which analyses software at the model level for performance bottlenecks, scalability issues, reliability threats, and allows for subsequent optimisation.

Provide a short description of your software to use as page subtitle.

209/300

Software URLs

Where can users find information to start?

Get Started URL

https://www.palladio-simulator.com/

Link to documentation for users.

35/200

Repository URL

https://github.com/PalladioSimulator

Link to source code repository

36/200

Platform

GitHub

Description

What Palladio can do for you

Document URL

Custom markdown

MARKDOWN

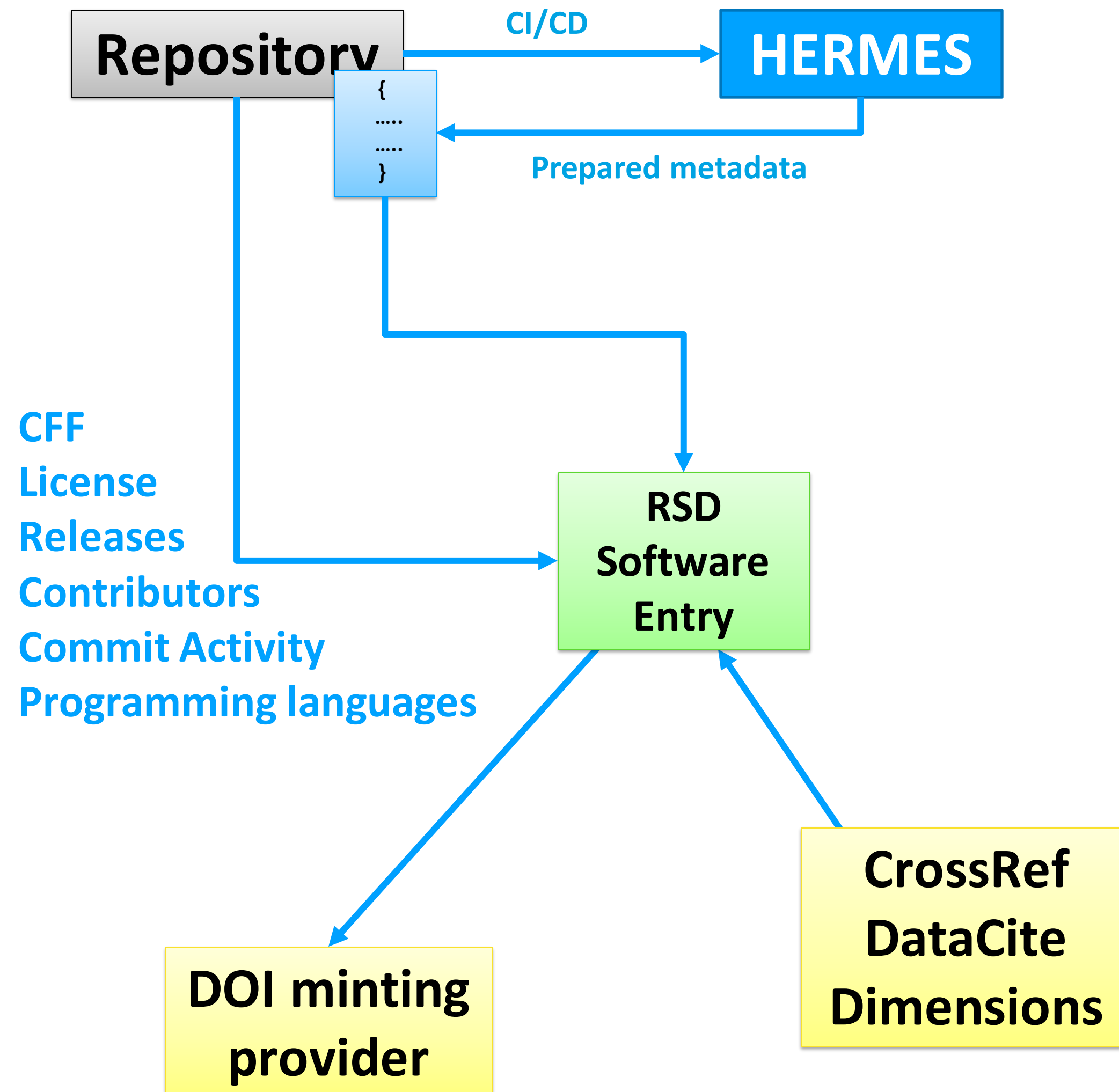
PREVIEW

3490/10000

Palladio - Modeling and Simulating Software Architectures

Palladio is a software architecture simulation approach which analyses your software at the model level for performance bottlenecks, scalability issues, reliability threats, and allows for a subsequent optimisation. Palladio requires



- Currently
 - Webfrontend
 - Manual entry of most data
 - Partly auto-imports via DOI, ORCID, ROR




- Currently
 - Webfrontend
 - Manual entry of most data
 - Partly auto-imports via DOI, ORCID, ROR
- Vision
 - Use HERMES output as foundation
 - Aggregate metadata
 - Forward ready-to-use metadata to DOI providers
- After publication
 - Scrape citations
 - Create data foundation for impact analysis

- How do we nudge RSEs to making their Software FAIR?
- Software quality indicators?
- Based on
 - FAIR Aspects, e.g.
 - Code quality
 - Existence of tests
 - REUSE compatibility
 - License type (FOSS vs proprietary vs closed source)
 - Documentation
 - Citations
 - Project activity



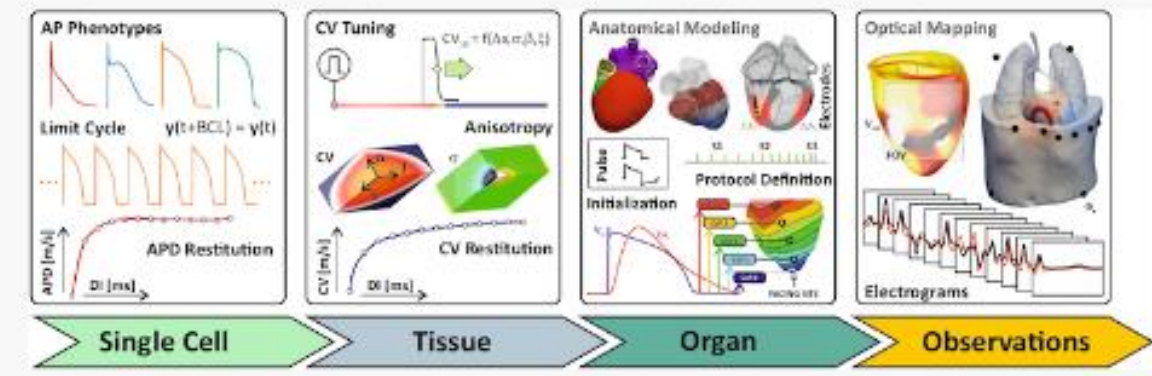





[◀ Back to Software Spotlights Overview ▶](#)

openCARP - The open cardiac electrophysiology simulator

openCARP is an open cardiac electrophysiology simulator for in-silico experiments. Its source code is public and the software is freely available for academic purposes. openCARP is easy to use and offers single cell as well as multiscale simulations from ion channel to organ level. Additionally, openCARP includes a wide variety of functions for pre- and post-processing of data as well as visualization. The python-based CARPutils framework enables the user to develop and share simulation pipelines, i.e. automating in-silico experiments including all modeling/simulation steps.



Overview of typical steps in an advanced cardiac electrophysiology simulation study.

openCARP offers a wide range of functionality which enables you to

Centres

Karlsruhe Institute of Technology (KIT)

Contributing organisations

Medical University of Graz [↗](#),
Liryc Bordeaux [↗](#),
Numericor [↗](#)

Keywords

- modeling & simulation
- computational cardiology
- electrophysiology
- in silico trials

Research field

Health

Scientific community

Computational Cardiology

- Promote outstanding products on the front page
- Awards for best open source software?
- Helmholtz currently has Software Spotlights on <https://hifis.net/spotlights>

- Provide services for RSEs
 - License consultation
 - Automated services that run every time (e.g. DOI forwarding)
- Potential for Institutes and Universities
 - Include RSD into process of publishing software
 - Publish only correctly licensed software
 - Have a catalogue of all published software

