netherlands eScience center

Painting the Picture of Software Impact with the Research Software Directory

Jurriaan H. Spaaks
Tom Klaver
Stefan Verhoeven
Jason Maassen
Tom Bakker
Atze van der Ploeg
Ben van Werkhoven
Willem van Hage
Rob V. van Nieuwpoort

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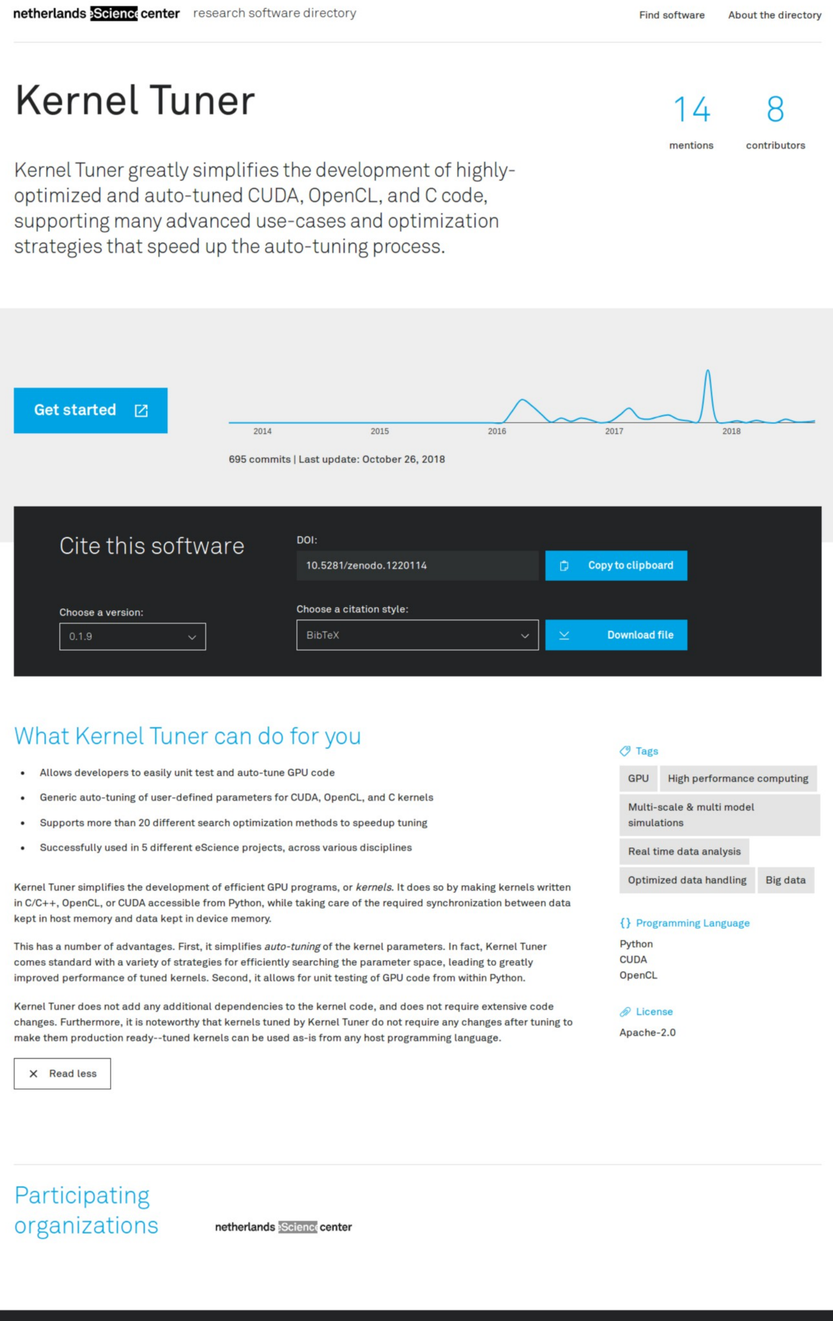
WSSSPE6.1
Amsterdam, The Netherlands

What is a Research Software Directory?

- A content management system for software
- Promotes **findability**, **reproducibility**, and **citability** of the software in it
- Enables qualitative assessment of software **impact**

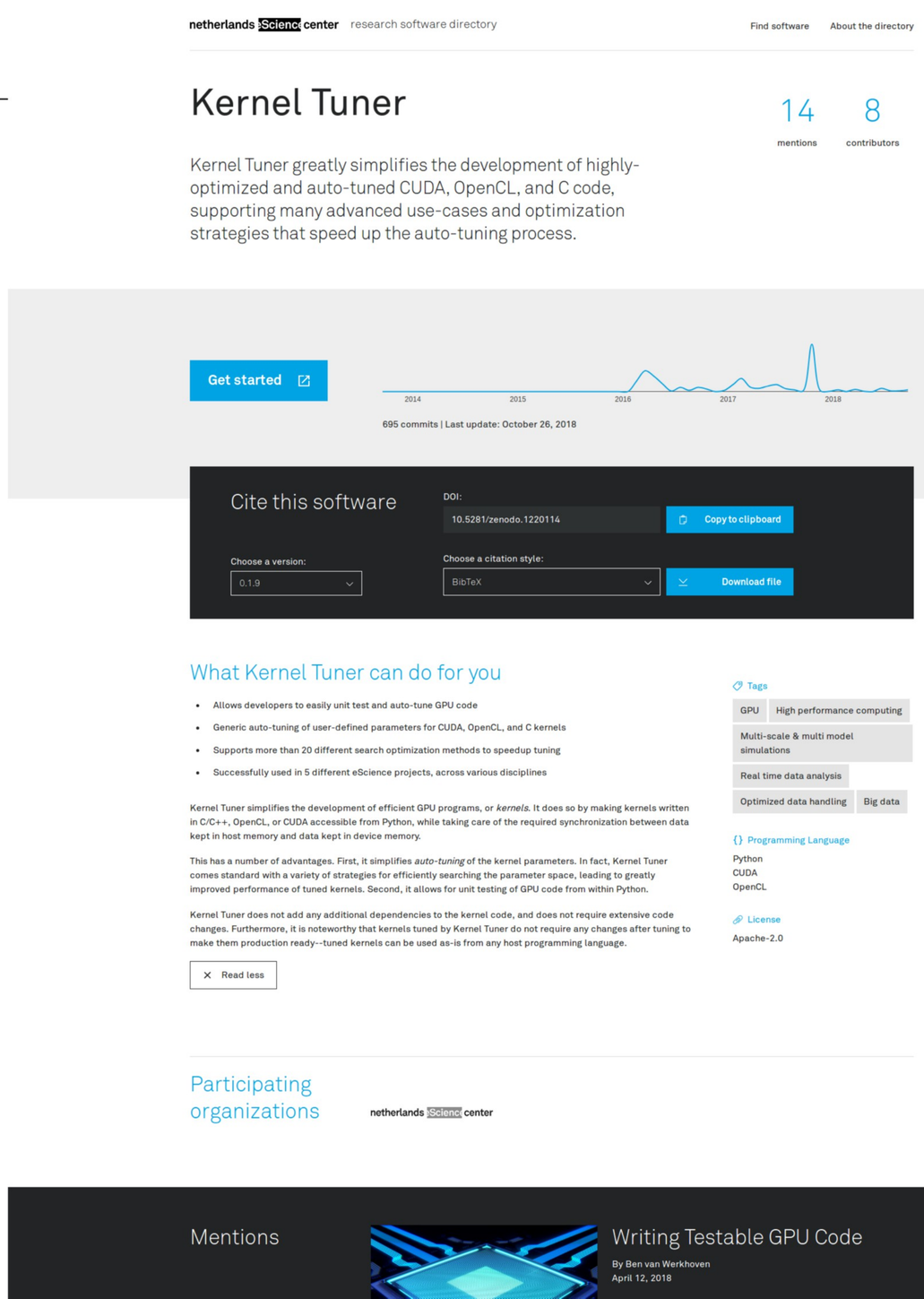
You can get your own!

- Permissive license (Apache-2.0)
- Check out our instance here: `https://www.research-software.nl`



Purpose

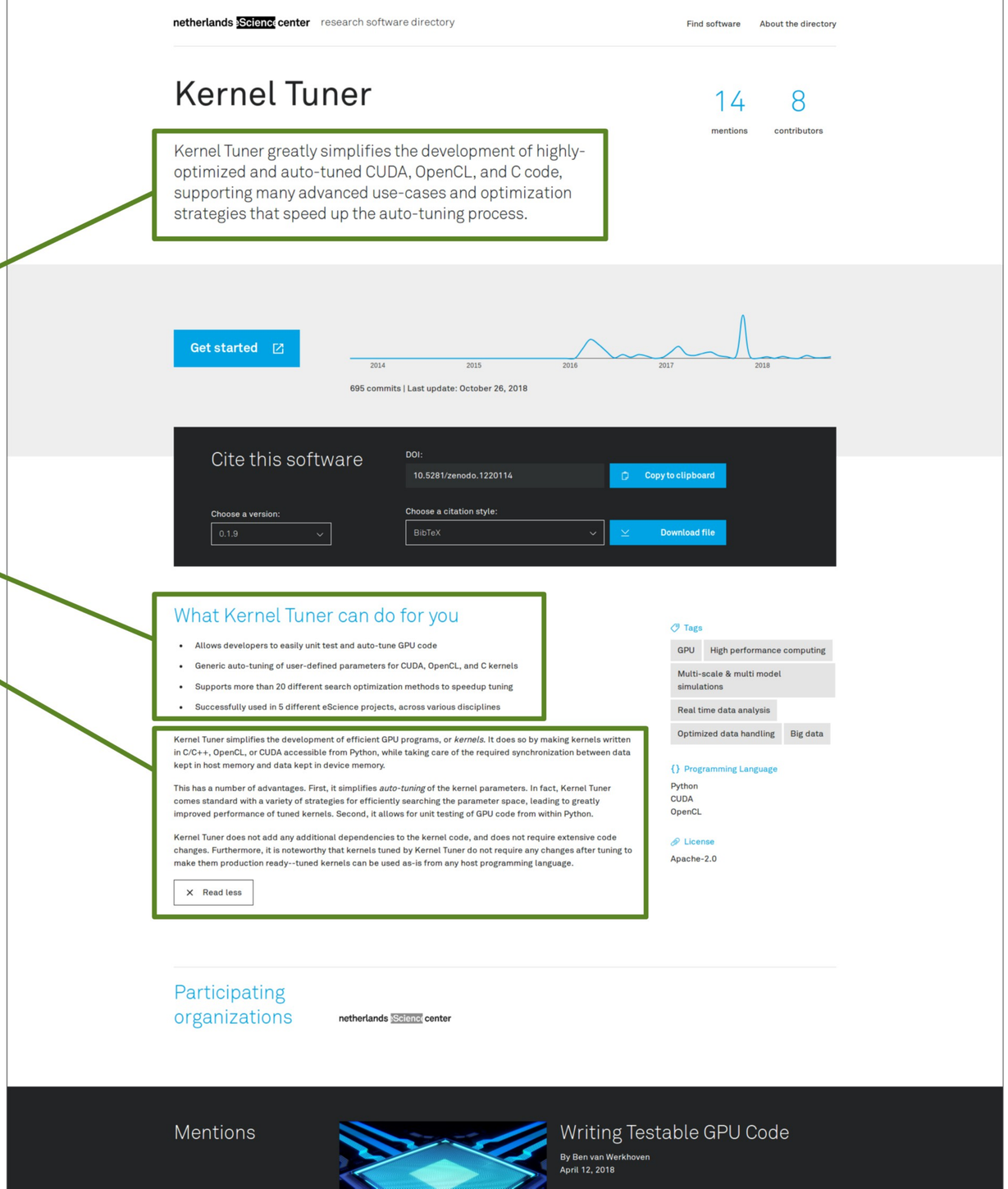
- Search
-
-
-
- Adoption



Purpose

- Search
- Find it
- Know that you found it
- Get started
- Adoption

Answer visitor's questions using inclusive language



in C/C++, OpenCL, or CUDA accessible from Python, while taking care of the required synchronization between data kept in host memory and data kept in device memory.

This has a number of advantages. First, it simplifies *auto-tuning* of the kernel parameters. In fact, Kernel Tuner comes standard with a variety of strategies for efficiently searching the parameter space, leading to greatly improved performance of tuned kernels. Second, it allows for unit testing of GPU code from within Python.

Kernel Tuner does not add any additional dependencies to the kernel code, and does not require extensive code changes. Furthermore, it is noteworthy that kernels tuned by Kernel Tuner do not require any changes after tuning to make them production ready--tuned kernels can be used as-is from any host programming language.

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{} Programming Language

Python
CUDA
OpenCL

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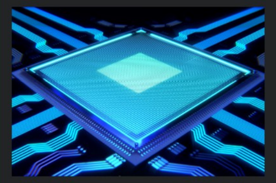
Mentions



Writing Testable GPU Code

By Ben van Werkhoven
April 12, 2018

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Projects with Kernel Tuner

A Jungle Computing Approach to Large-Scale Online Forensic Analysis

Programming tools that simplify application development and deployment

Prof. Henri Bal
VU University Amsterdam

3D Geospatial Data Explor. for Modern Risk Management Systems

The country below sea level

Parallelisation of multi point-cloud registration

Studying subcellular structures and functions

Dr. Bernd Rieger
Delft University of Technology

Real-time detection of neutrinos from the distant Universe

Observing processes that are inaccessible to optical telescopes

Dr. Dorothea Samtleben
Leiden University

DIRAC

Distributed Radio Astronomical Computing

Dr. Sarod Yatawatta
ASTRON

Contributors

Ben van Werkhoven
Netherlands eScience Center

Alessio Sclocco
Netherlands eScience Center

Patrick Bos
Netherlands eScience Center

Inti Pelupessy
Netherlands eScience Center

Felipe Zapata
Netherlands eScience Center

Johannes Hidding
Netherlands eScience Center

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CONTACT PERSON

Ben van Werkhoven
Netherlands eScience Center
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Kernel Tuner

14 mentions

8 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

695 commits | Last update: October 26, 2018

Cite this software

DOI: 10.5281/zenodo.1220114 Copy to clipboard

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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 5 different eScience projects, across various disciplines

Kernel Tuner simplifies the development of efficient GPU programs, or *kernels*. It does so by making kernels written in C/C++, OpenCL, or CUDA accessible from Python, while taking care of the required synchronization between data kept in host memory and data kept in device memory.

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Tags

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

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Mentions

Writing Testable GPU Code

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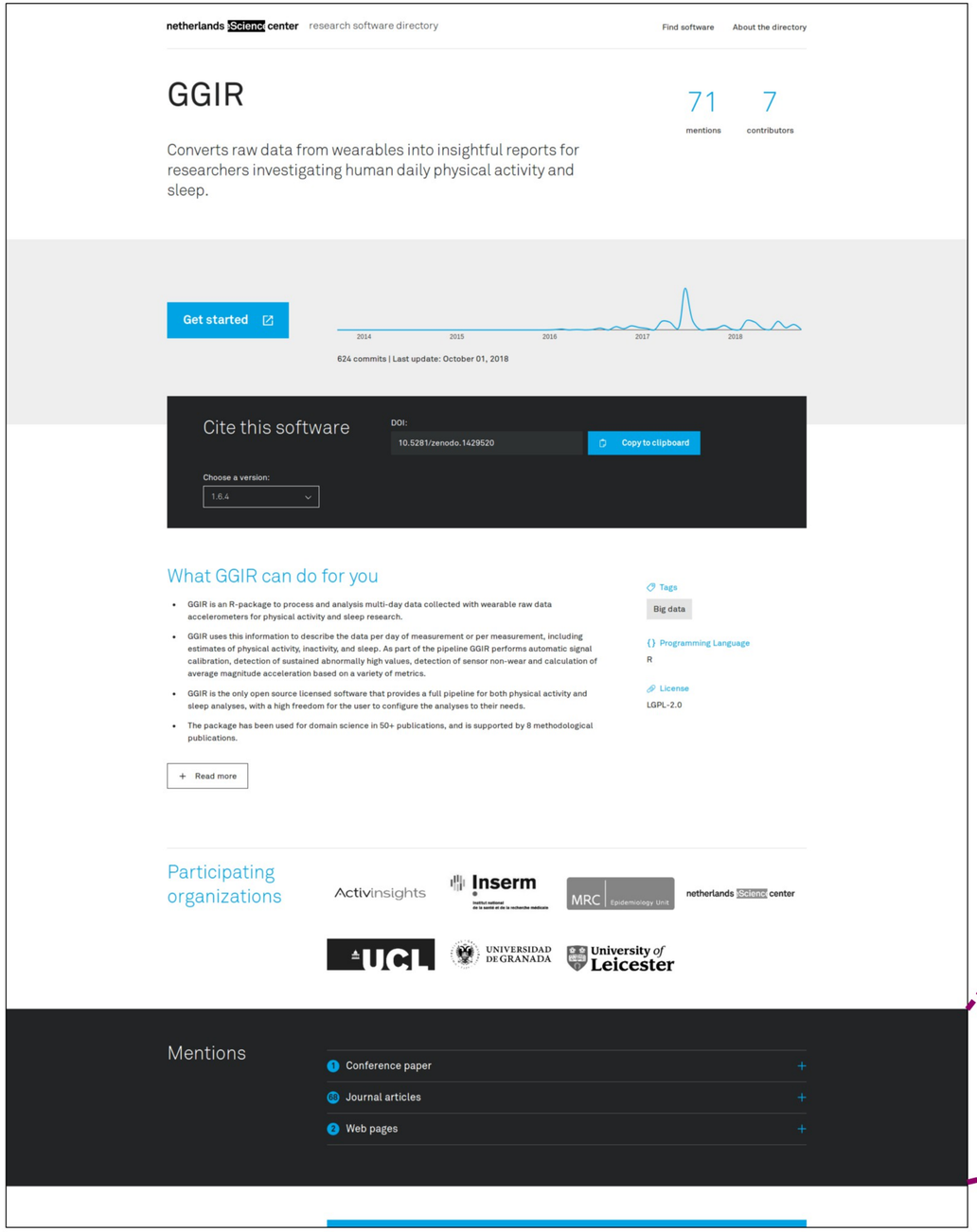
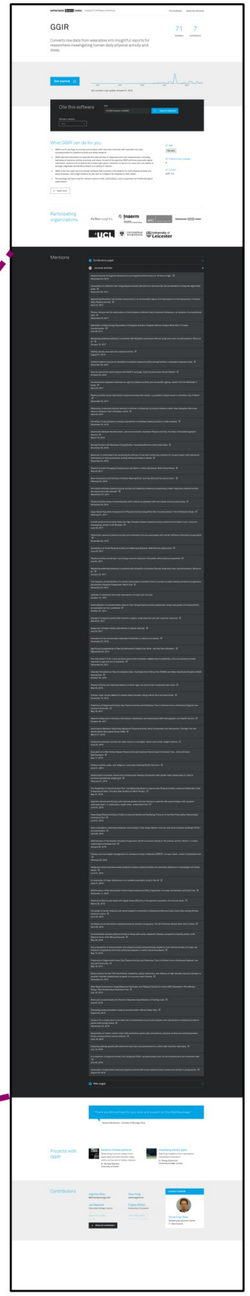
Contents

Qualitative measurement of impact





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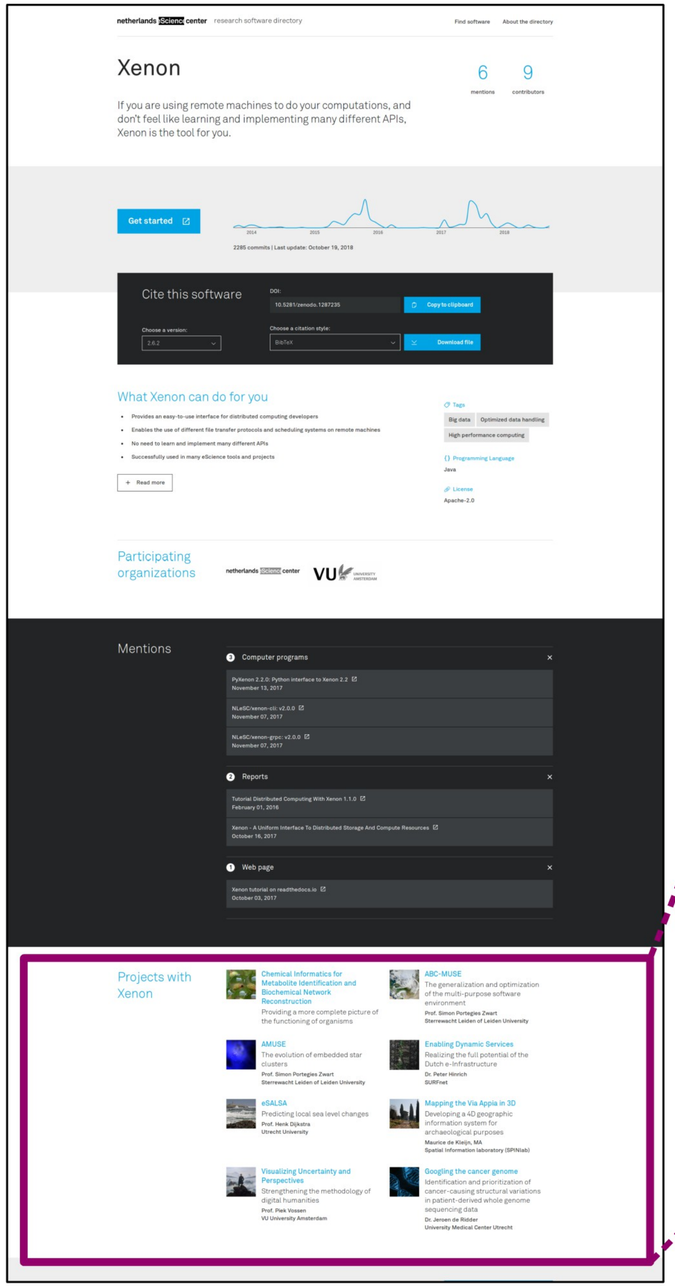


Projects with Xenon

Chemical Informatics for Metabolite Identification and Biochemical Network Reconstruction
Providing a more complete picture of the functioning of organisms

ABC-MUSE
The generalization and optimization of the multi-purpose software environment
Prof. Simon Portegies Zwart
Sterrewacht Leiden of Leiden University

AMUSE
The evolution of embedded star clusters
Prof. Simon Portegies Zwart
Sterrewacht Leiden of Leiden University

Enabling Dynamic Services
Realizing the full potential of the Dutch e-Infrastructure
Dr. Peter Hinrich
SURFnet

eSALSA
Predicting local sea level changes
Prof. Henk Dijkstra
Utrecht University

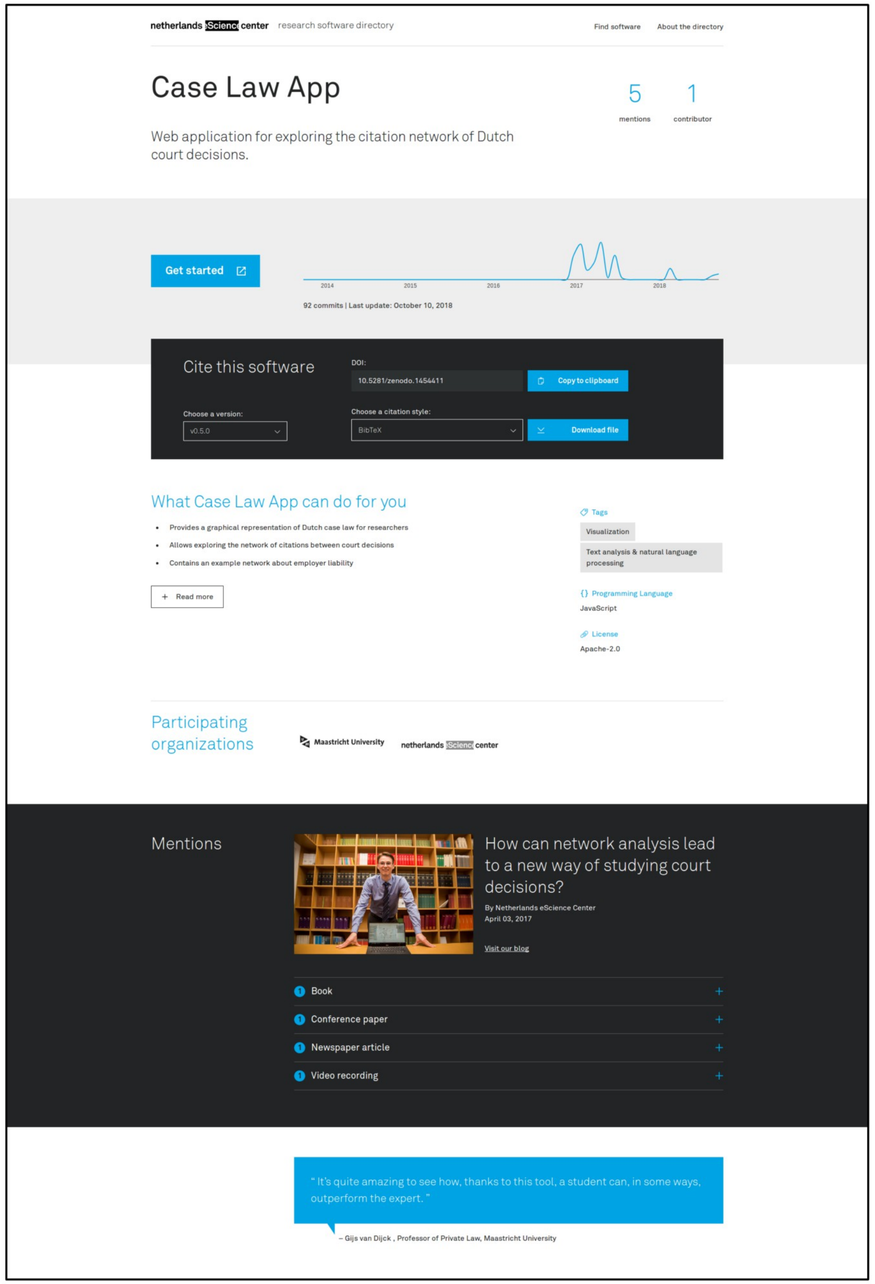
Mapping the Via Appia in 3D
Developing a 4D geographic information system for archaeological purposes
Maurice de Kleijn, MA
Spatial Information laboratory (SPINlab)

Visualizing Uncertainty and Perspectives
Strengthening the methodology of digital humanities
Prof. Piek Vossen
VU University Amsterdam

Googling the cancer genome
Identification and prioritization of cancer-causing structural variations in patient-derived whole genome sequencing data
Dr. Jeroen de Ridder
University Medical Center Utrecht

many projects
depend on Xenon

Qualitative measurement of impact



" It's quite amazing to see how, thanks to this tool, a student can, in some ways, outperform the expert. "

– Gijs van Dijck , Professor of Private Law, Maastricht University

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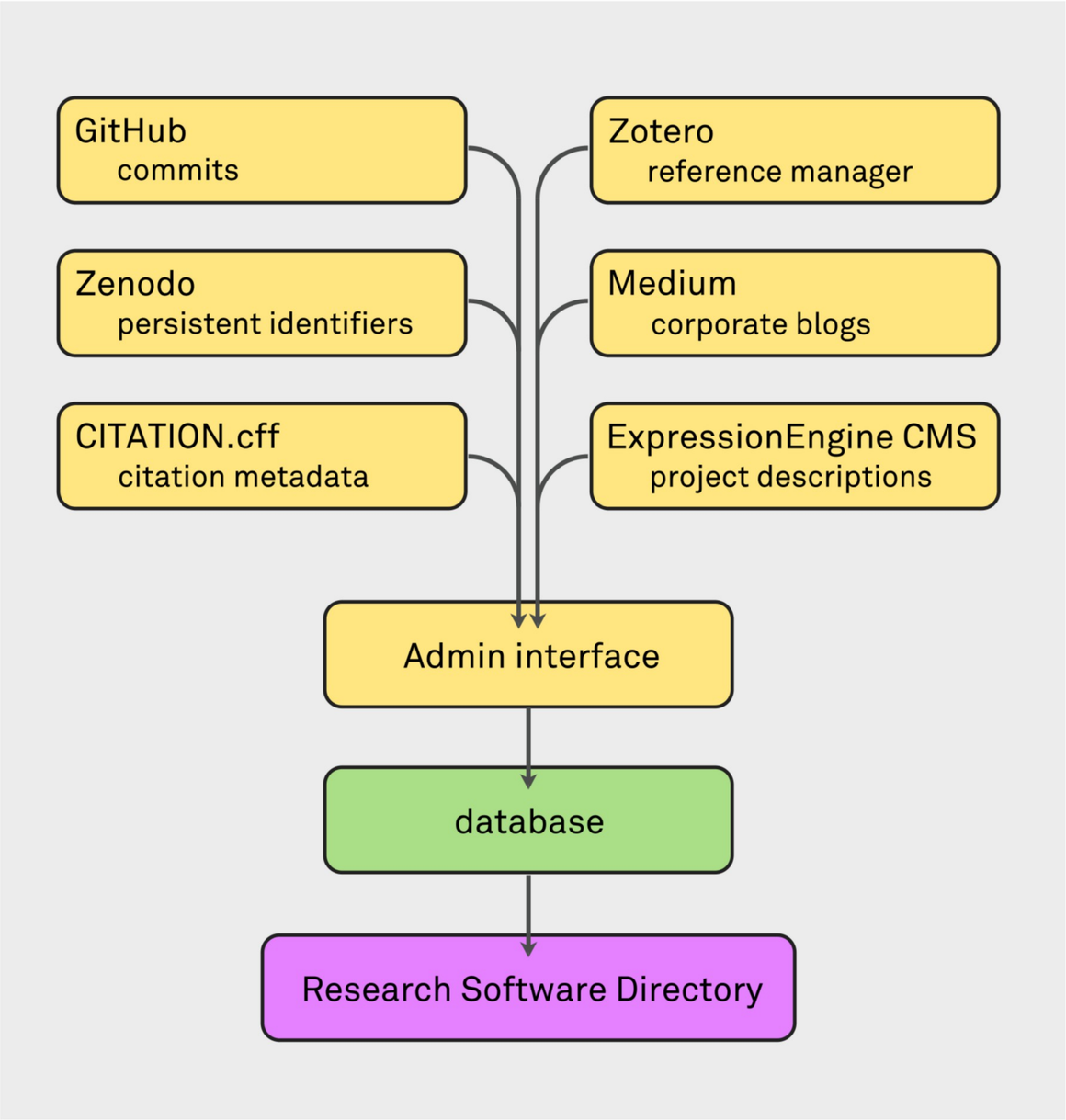

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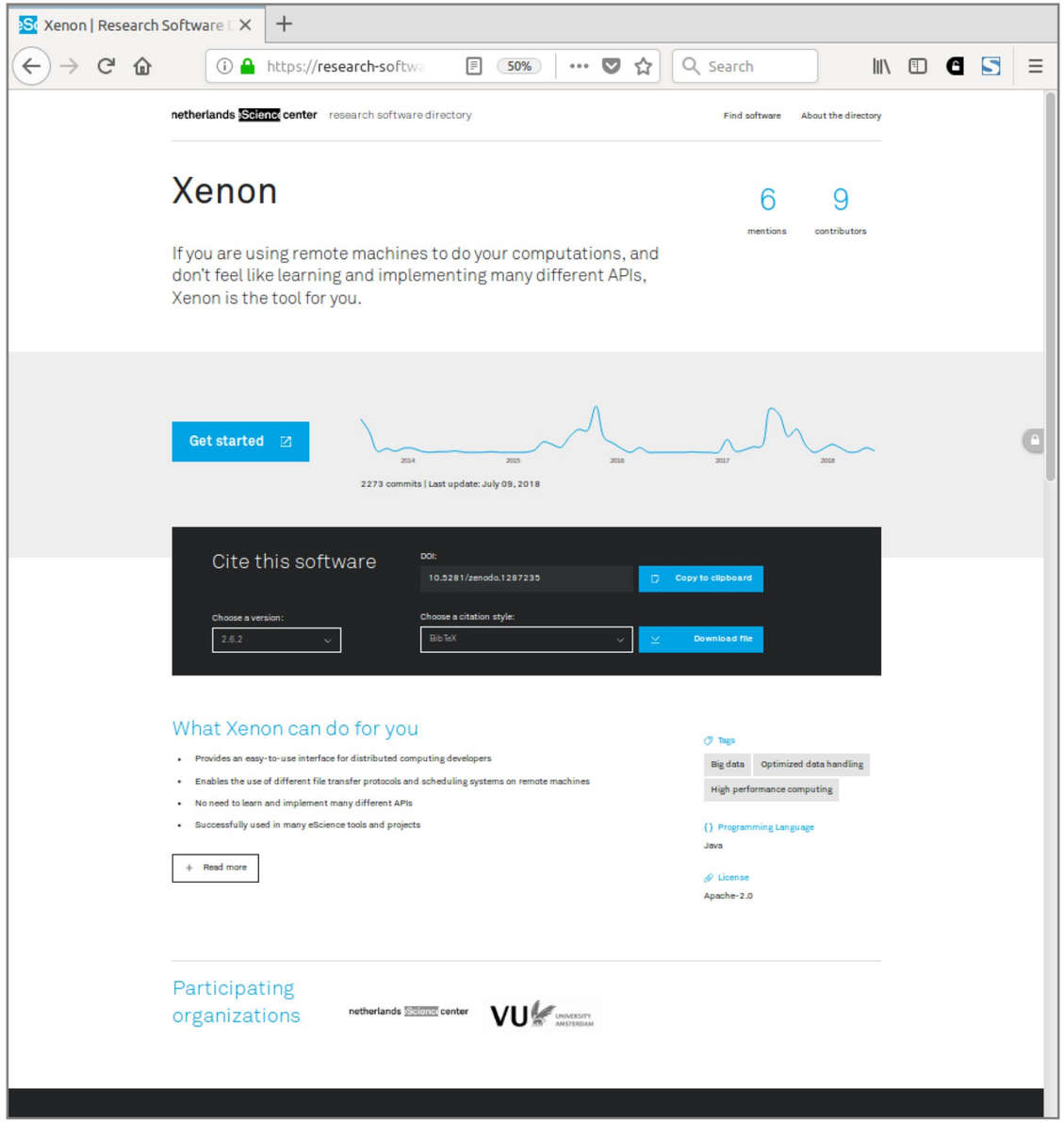
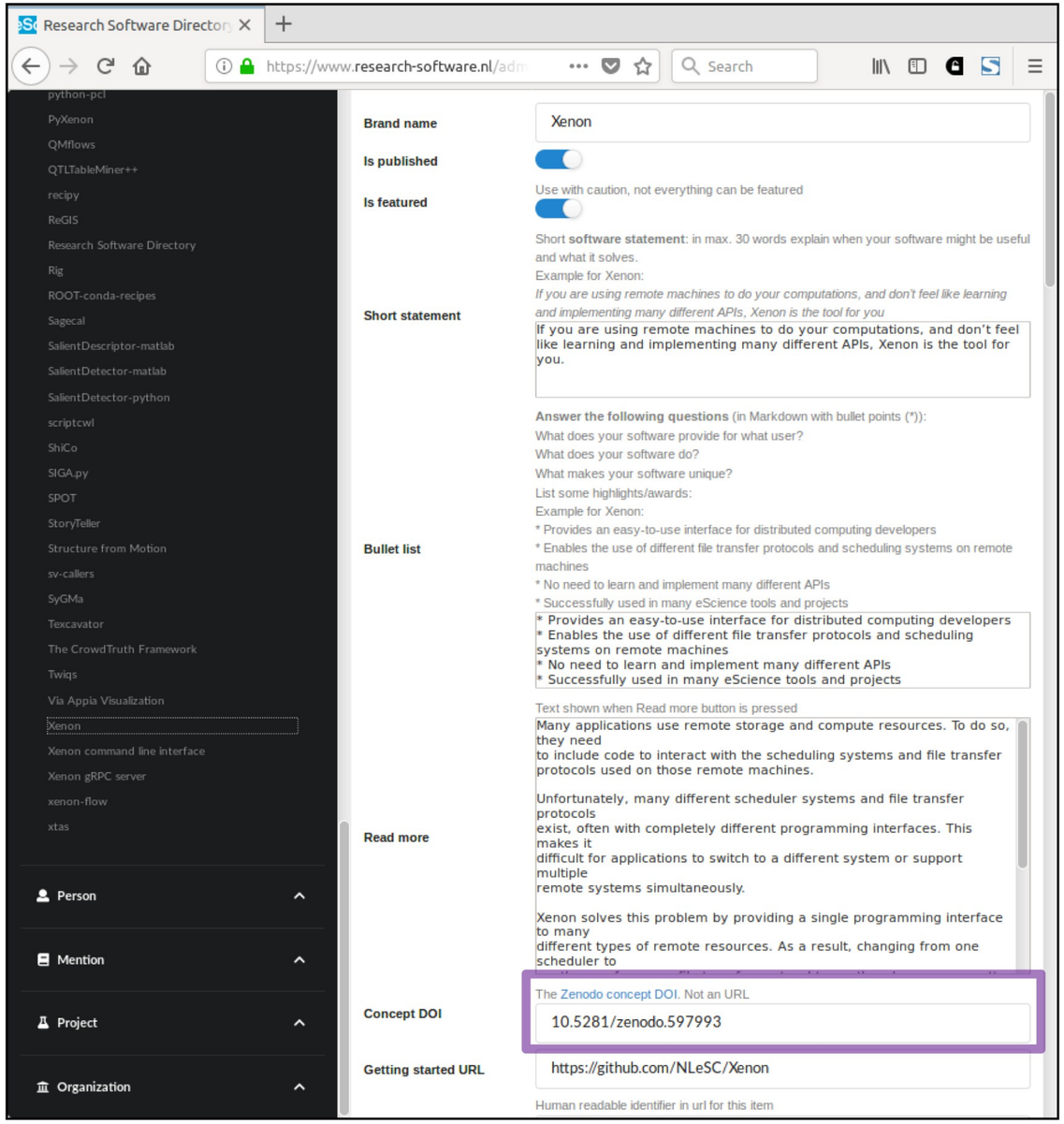


admin interface



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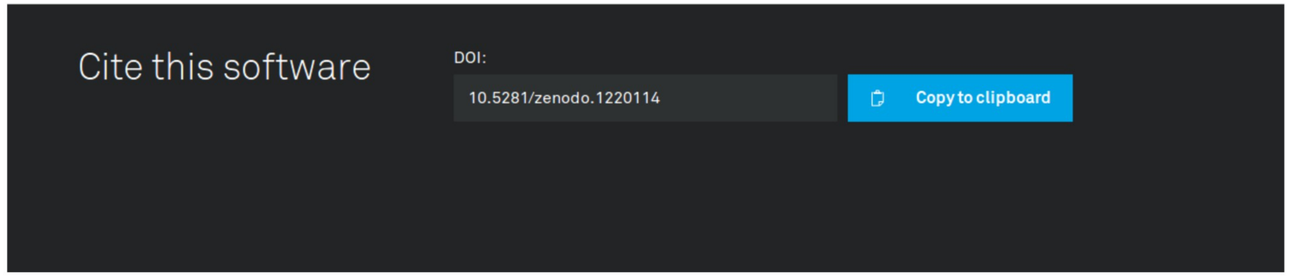
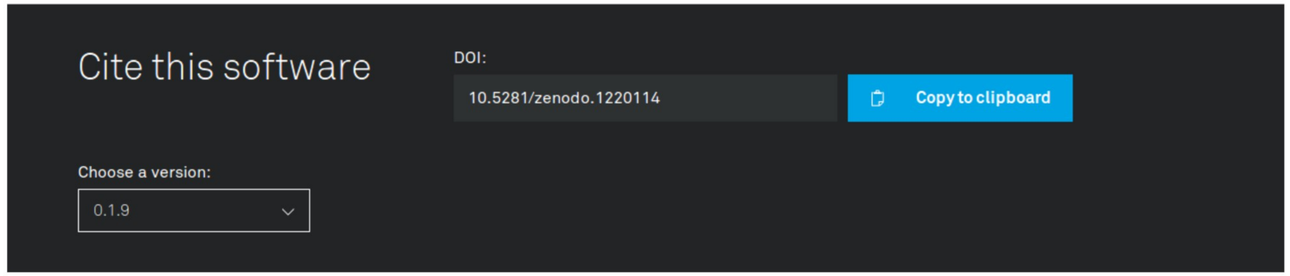
- Emphasize software can be cited
- Make it easy to do so

Software only has DOI:



Software has DOI resulting from GitHub-Zenodo integration:



Same as previous,
plus release has CITATION.cff

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+31 (0)20 460 4770

info@esciencecenter.nl

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