

Sichtbarkeit und FAIRness von Forschungssoftware erhöhen: das Research Software Directory

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dini Workshop „Forschungssoftware managen“

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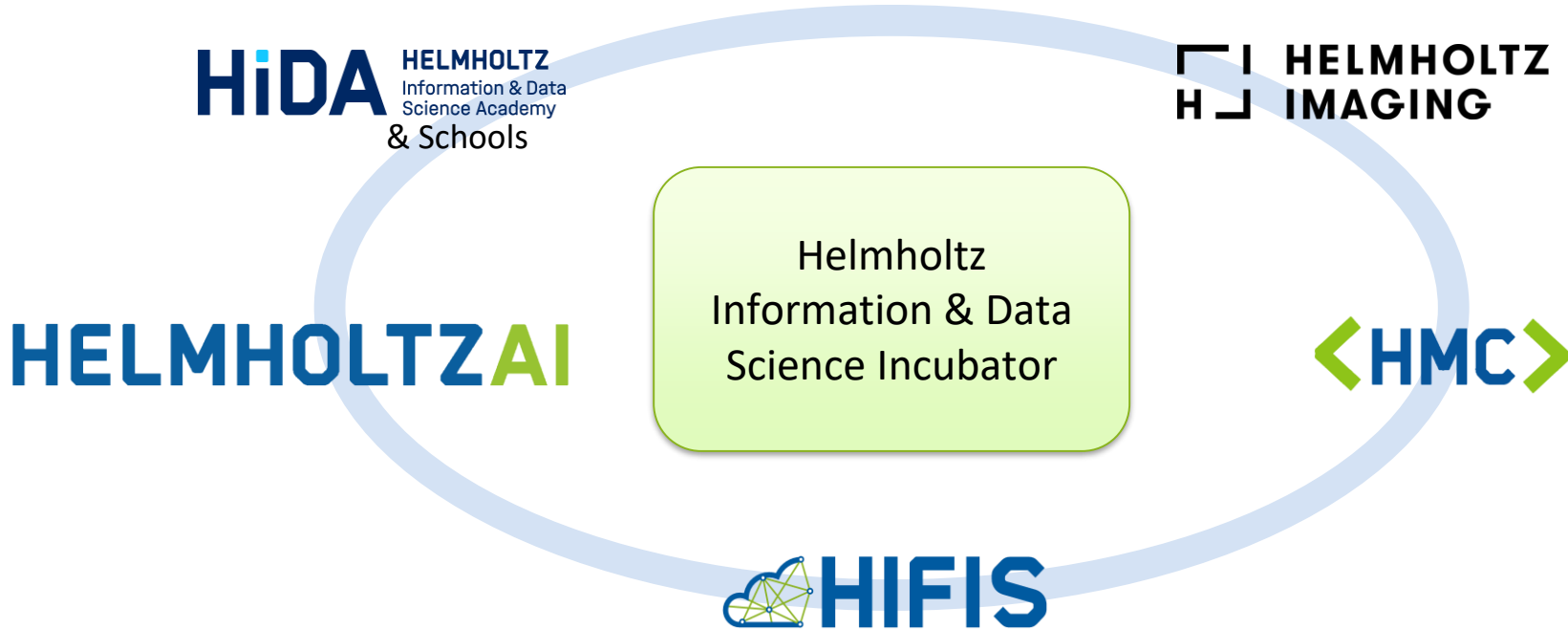
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1) Helmholtz Zentrum Potsdam, Deutsches GeoForschungsZentrum Potsdam GFZ

2) Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

Helmholtz Inkubator

- Helmholtz strebt eine **gemeinsame Forschungs- & Informationsumgebung** für alle Forschungsbereiche an
- Zentrenübergreifende Plattformen für Weiterbildung, interdisziplinäre Wissenschaften und IT Infrastruktur:



- HIFIS Aufgabe
 - Schaffung einer nahtlosen, leistungsfähigen IT Infrastruktur
- Drei Kompetenzcluster
 - Cloud Services Cluster
 - Backbone Services Cluster
 - **Software Services Cluster**

Education & Training

- **Courses, material and workshops** for getting you started or boosting your software engineering practice.

Community

- Build and foster communities to support the **cultural change** when dealing with research software.
- Maintain a SW Directory

Consulting

- **Contact points** for researchers for questions and problems in the context of RSE.

Technology

- Provide a sustainable, well integrated and easy to use **technology infrastructure** for research software development.



FAIRe Forschungssoftware heute

Eine typische Zitation von Forschungssoftware

“We did this and that using the software
Someproduct (Author et al. 2011, 2019).”

Eine peer-reviewed
Publikation, die *Someproduct*
und dessen Algorithmus
vorstellt.

Eine Konferenz-Präsentation
über neuere Features von
Someproduct.

FAIRe Forschungssoftware heute

Forschungssoftware besser zitieren

- Was würde die Zitation **FAIR**er machen?
 - Benennung der verwendeten Version
 - Link zu einem DOI Provider mit Permalink zur Software

Findable?

Accessible?

Interoperable

Reusable?

“We did this and that using the software Someproduct (Author et al. 2011, 2019, 2022).”

Author et al. 2022, Someproduct v1.3.124,
<https://linktodoiprovider.org/10.123/123123123>



Langfristig gesicherter
Zugriff auf die
verwendete Software

FAIRe Forschungssoftware heute

Mehr Verbesserungsbedarf

- Korrekte Lizenzierung
- Dependency pinning
- Auffindbarkeit außerhalb der Forschungsliteratur
- Wertschätzung im Wissenschaftsbetrieb
- Impact measurement
- Uneinheitliche Metadaten bei DOI Providern



Lösungsansatz

Research Software Directory

The screenshot shows the Research Software Directory website. At the top, there is a navigation bar with links for 'Research Software Directory', 'Search or jump to...', 'Software', 'Projects', 'Organisations', and 'Sign in'. Below the navigation bar, the Helmholtz logo is displayed with the tagline 'Research for grand challenges.' To the right, there is a section titled 'Promote and Discover Research Software' with the subtitle 'Because software matters' and a 'Browse software' button. Below this, there is a 'Software Spotlights' section with the text 'The latest outstanding software product developed in Helmholtz.' The main content area displays a 'MassBank Record: UA002903' for 'Atrazine; APCI-ITFT; MS2; CE: 35%; R=30000; [M+H]+'. It includes a mass spectrum plot showing relative intensity versus m/z. Below the plot, there is a table with the following information: ACCESSION: UA002903, RECORD TITLE: Atrazine; APCI-ITFT; MS2; CE: 35%; R=30000; [M+H]+, DATE: 2014-06-24, AUTHORS: C. Gollmann (Umeå), E. Schymanski (Eawag, W. Brack (EPF), LICENSE: CC-BY, COPYRIGHT: Copyright (C) Eawag, 2014, PUBLICATION: Multi-criteria approach for tentative identification of unknowns in metabolomics, exposomics and environmental relevance.

- Ursprünglich entwickelt am Netherlands eScience center
- Unterstützt durch HIFIS Software
- Komplette Neuentwicklung 2022
- Software Katalog für RSEs und WissenschaftlerInnen
- Netherlands eScience center:
<https://research-software-directory.org>
- Helmholtz pilot
<https://helmholtz.software>

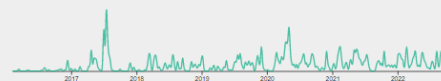
Beispieleintrag

GGIR

120 7
mentions contributors

Converts raw data from wearables into insightful reports for researchers investigating human daily physical activity and sleep.

Get started



2330 commits | Last commit ≈ 2 days ago

Cite this software

DOI:

10.5281/zenodo.7043054

COPY TO CLIPBOARD

Choose a version:

2.7.6

Choose a reference manager format:

DOWNLOAD FILE

What GGIR can do for you

- GGIR is an R-package to process and analysis multi-day data collected with wearable raw data accelerometers for physical activity and sleep research.
- GGIR uses this information to describe the data per day of measurement or per measurement, including estimates of physical activity, inactivity, and sleep. As part of the pipeline GGIR performs automatic signal calibration, detection of sustained abnormally high values, detection of sensor non-wear and calculation of average magnitude acceleration based on a variety of metrics.
- GGIR is the only open source licensed software that provides a full pipeline for both physical activity and sleep analyses, with a high freedom for the user to configure the analyses to their needs.
- The package has been used for domain science in 70+ publications, and is supported by 8 methodological publications.

The package has been developed and tested for binary data from GENEActiv and GENE devices,

Keywords

Big data

Programming language

R 100%

License

LGPL-2.0

Source code



[LINK](#)

Participating
organisations

Activinsights

Inserm

MRC Epidemiology Unit

netherlands eScience center

UCL

UNIVERSIDAD DE GRANADA

University of
Leicester

Mentions

Blogposts

Book section

Conference papers

Journal articles

Video recordings

Webpages

Testimonials

"Thank you @vtvanhees for your work and support on the #GGIRpackage."

— Damien Bachasson, Institute of Myology, Paris, France

Contributors

CONTACT PERSON

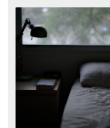


Vincent van Hees
Netherlands eScience Center
Mail: Vincent

Evgeny Mirkes
University of Leicester

Jairo Migueles
University of Granada

Related projects



Genetics of sleep patterns

Detecting human sleep from wearable accelerometer data without the aid of sleep diaries

Updated 2 months ago

Finished

Attraktivität des RSDs

Datenaufnahme

The screenshot displays the Palladio web interface. At the top, there's a navigation bar with 'RSD', a search bar, and tabs for 'Software', 'Projects', and 'Organisations'. The main content area is titled 'Palladio' and includes a sidebar with a list of sections: Information, Contributors, Organisations, Mentions, Testimonials, Related topics, and Maintainers. The 'Software information' section is active, showing fields for 'RSD path' (palladio), 'Name' (Palladio), 'Short description', 'Software URLs', and 'Description'. The 'Description' field is currently in 'Custom markdown' mode, showing a preview of the markdown text.

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. 209/300

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/ 35/200

Link to documentation for users. 35/200

Repository URL
https://github.com/PalladioSimulator Platform: GitHub

Link to source code repository. 36/200

Description
What Palladio can do for you

☐ Document URL ☒ Custom markdown

MARKDOWN PREVIEW 2400/10000

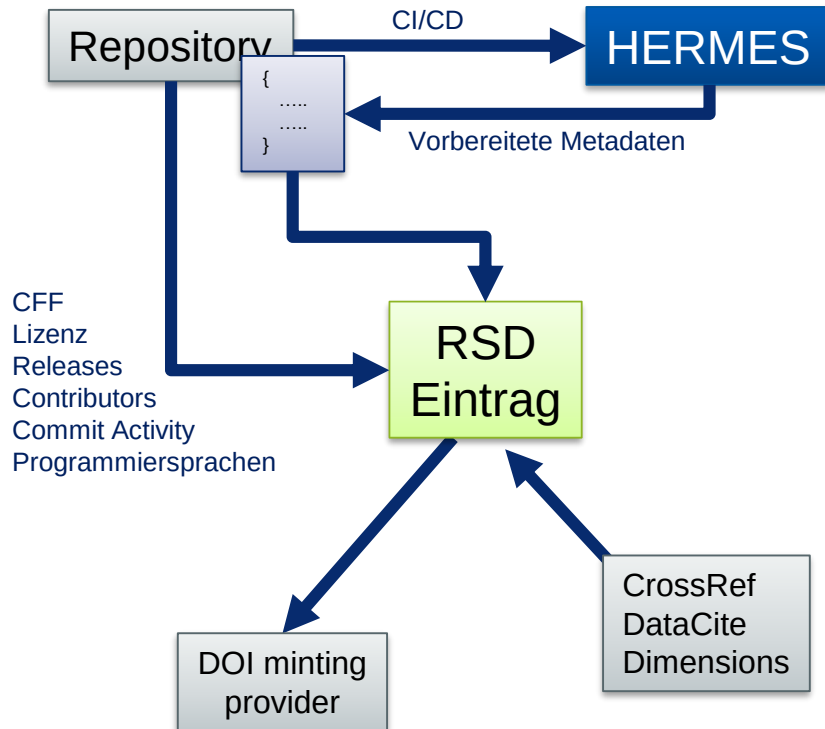
Palladio - Modeling and Simulating Software Architectures

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

- Aktuell
 - Webfrontend
 - Größtenteils manuelle Eingabe
 - Teilweise auto-import über DOI

Attraktivität des Software Directories

Datenaufnahme automatisieren

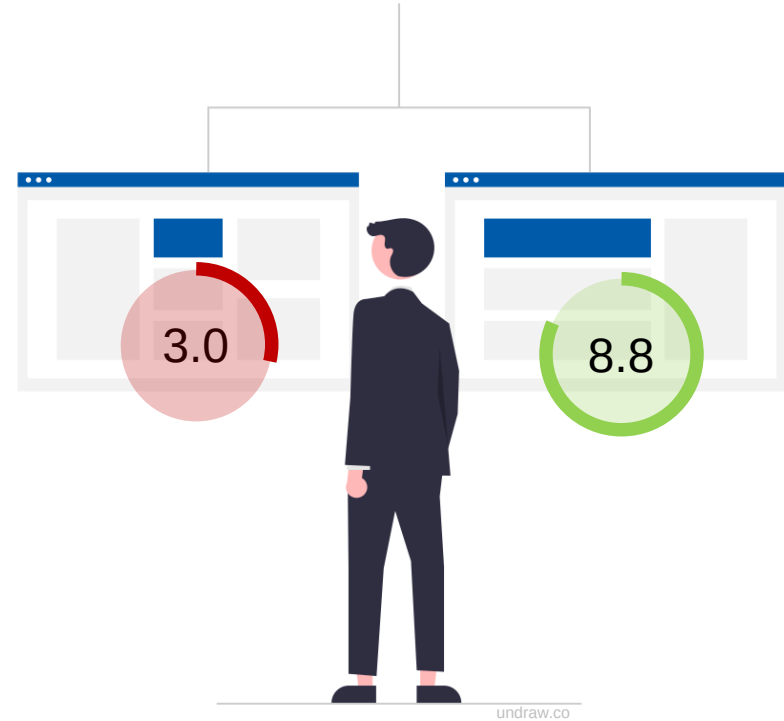


- Aktuell
 - Webfrontend
 - Größtenteils manuelle Eingabe
 - Teilweise auto-import über DOI
- Ziel
 - Output HERMES als Grundlage
 - Vorbereitung der Metadaten
 - Weiterleitung an DOI Minting Provider
- Nach Veröffentlichung
 - Scraping von Zitationen
 - Grundlage für Impact Analyse schaffen
 - Software Heritage

FAIRness und Nachhaltigkeit erhöhen

Kompetitive Anreize schaffen

- Schaffung eines Qualitätsindikators
- Auswertung von
 - FAIR Aspekten, zB
 - Code Qualität
 - Vorhandensein von Tests
 - REUSE Kompatibilität
 - Art der Lizenz (FOSS vs proprietär)
 - Dokumentation
 - Zitationen
 - Projektaktivität (commits)



Sichtbarkeit von Forschungssoftware erhöhen

Helmholtz Software Spotlights

The screenshot shows the HIFIS (Helmholtz Federated IT Services) website header with the logo and a search icon. Below the header is a blue banner with the text "openCARP" and a graphic of a heart and a globe. The main content area features a "Back to Software Spotlights Overview" link. The title "openCARP - The open cardiac electrophysiology simulator" is followed by a paragraph describing the software. Below the text is a diagram showing the workflow from "Single Cell" to "Tissue" to "Organ" to "Observations". To the right of the main text are sections for "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), and "Scientific community" (Computational Cardiology).

HIFIS HELMHOLTZ FEDERATED IT SERVICES

openCARP

◀ 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.

Single Cell **Tissue** **Organ** **Observations**

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

- Besonders bedeutsame Software als Spotlight auf der Frontpage
- Software Spotlights aktuell unter <https://hifis.net/spotlights>
- Auszeichnungen für beste Open Source Software

RSD in Zukunft

Das gesamte Potential ausschöpfen

- Services für RSEs
 - Lizenzberatung
 - Automatisierte Qualitätskontrolle
- Potential für Institute und Universitäten
 - Sicherstellung korrekter Lizenzierung
 - Sicherstellung Technologietransfer
 - Katalogisierung aller Veröffentlichungen (auch closed source)
 - Impact assessment

