Carnegie Mellon University Libraries

Open Source in Academia

February 7, 2025

National Open Source Innovation Summit Dublin

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JDI
DIABETES, OBESITY AND METABOLISM
CLINICAL ENDOCRINOLOGY
DIABETIC Medicine
Pediatric Diabetes
Diabetes, Metabolism
Practical DIABETES
pediatric obesity
Applied Ceramic
ADVANCED ENGINEERING MATERIALS
ADVANCED MATERIALS
Applied Glass
Materials and Corrosion
Macromolecular Chemistry and Physics
ADVANCED ENERGY MATERIALS
ADVANCED OPTICAL MATERIALS
Macromolecular Rapid Communications
small
journal


replaceAll(" ", " ", a);
a.split(" ");
array_from_string
use_unique
this.trigger("click");
User_logged
click(function

Open Source Programs Office (OSPO)

The open source programs office (OSPO) raises awareness and capacity for open source software to better develop, manage, curate, and share it for research, education, translation, and broader impact.

As a community convener and center of competency, the OSPO aims to build open source capacity within CMU and beyond, leveraging the institution's research, teaching, and policy expertise to maximize its social impact on a global scale. View current opportunities.

OPSO Core Objectives

- Explore open source software and its impact as an underlying component for automated science.
- Examine how both US Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers (UARCs) can develop open source policies, processes and programs.
- Support wider university services such as student internships and open source educational efforts.
- Build the university's capacity to curate, manage and share open source software.

CURIOSS

Home News Resources About

What is CURIOSS?

CURIOSS is a **C**ommunity for **U**niversity and **R**esearch **I**nstitution **OS**PO**s**. Our goals are to facilitate the networking and collaboration between CURIOSS representatives from universities and research institutions worldwide. CURIOSS was set up in 2023 with the support of a grant from the Alfred P. Sloan Foundation.

Click here to contact the CURIOSS team!

Carnegie Mellon University Libraries

ETH zürich transfer

THE GEORGE WASHINGTON UNIVERSITY WASHINGTON, DC

Georgia Tech

JOHNS HOPKINS SHERIDAN LIBRARIES Open Source Programs Office

LEARO Software for a better world

Oregon State University

RIT

SAINT LOUIS UNIVERSITY

Stanford University

Syracuse University

Trinity College Dublin The University of Dublin

Faculty and Student Support

- Industry best practices
- Licensing best practices (with CTTEC)
- Community governance and management
- Sustainability (including market discovery)
- Proposal submission (NSF, Sloan Foundation)
- Summer of code course
- Student fellowships
- Hackathons, student clubs

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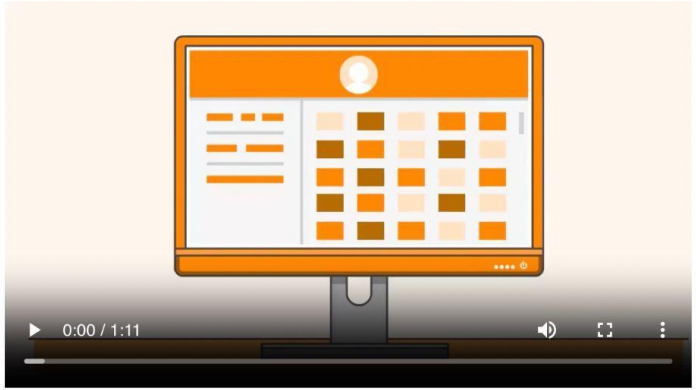

SCARF

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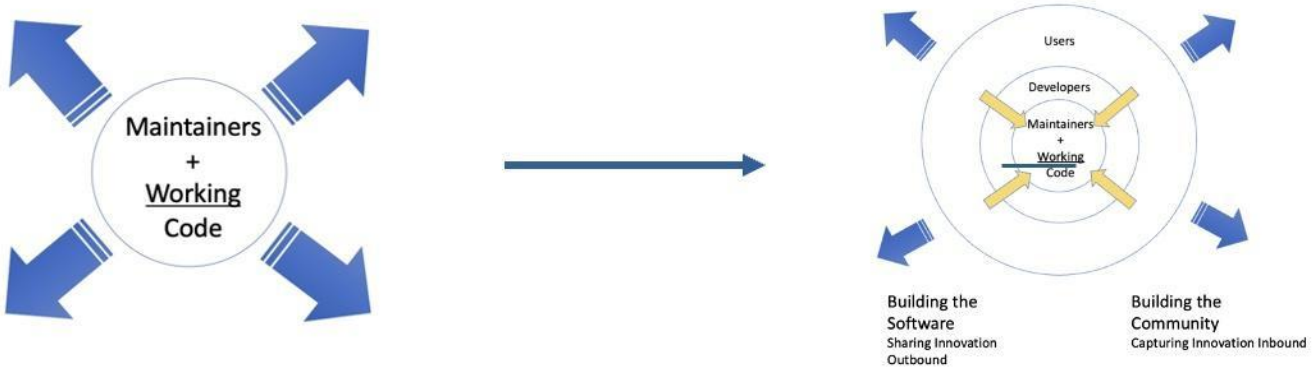
Moving from Project to Product



Credit: Stephen Walli

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Penrose

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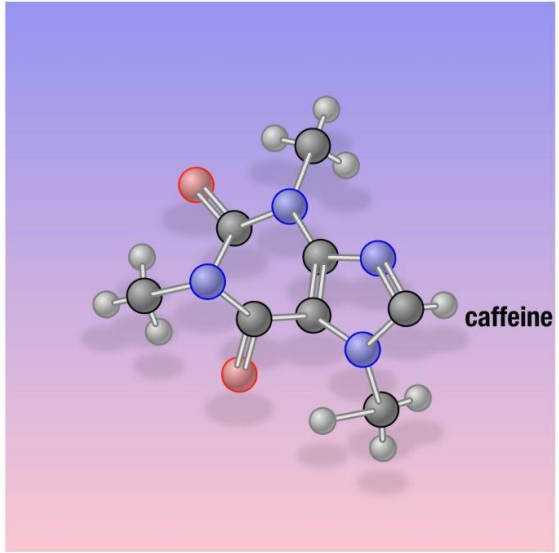
Examples Try Tutorial



Open Energy Outlook

The Open Energy Outlook, an initiative of the Wilton E. Scott Institute for Energy Innovation at Carnegie Mellon University in partnership with NC State University, aims to examine U.S. energy futures to inform energy and climate policy efforts by applying the gold standards of policy-focused academic modeling, maximizing transparency, and building a networked community. Supported by the Alfred P. Sloan Foundation.

Background and Motivation

The United States must pursue rapid and far-reaching efforts to achieve carbon neutrality by mid-century to mitigate the worst effects of climate change. **Policy must drive fundamental changes in the ways we produce and consume energy.** Policy makers face the monumental challenge of crafting effective climate policy in the face of highly uncertain expectations about the future, particularly because energy infrastructure is expensive and long-lived.

OPEN ENERGY OUTLOOK FOR THE UNITED STATES

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Spiral

Software/Hardware Generation for Performance

Home | Generator | Benchmarks | Publications | Software | Hardware | Grants | Team | Related | Internal

Home

This is the home page of the SPIRAL project. The goal of SPIRAL is to push the limits of automation in software and hardware development and optimization for digital signal processing (DSP) algorithms and other numerical kernels beyond what is possible with current tools.

Our basic research question is

Can we teach computers to write fast libraries?

Our flagship is the SPIRAL program generation system, which, entirely autonomously, generates platform-tuned implementations of signal processing transform such as the discrete Fourier transform, discrete cosine transform, and many others. Look at a few benchmarks. But we also provide other online generators (see the right column).

SPIRAL addresses one of the current key problems in numerical software and hardware development: how to achieve close to optimal performance with reasonable coding effort? (More detailed problem statement.)

SPIRAL comprises an interdisciplinary team of researchers in the areas of signal processing, algorithms, scientific computing, compilers, computer architecture, and mathematics.

In the domain of linear transform, and for standard multicore platforms (Core 2 Duo like), we have achieved complete automation: the computer generation of general input-size, vectorized, parallel libraries.

Learn Quickly About SPIRAL

This short article in the recent Encyclopedia of Parallel Computing describes the main ideas behind our program synthesis work for transforms:

Open Source SPIRAL System

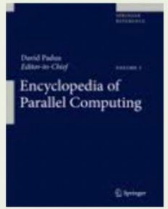
Open Source SPIRAL is available here under non-viral license (BSD-style license). See the SPIRAL User Manual for more information. Please let us know which parts of SPIRAL you are most interested in. Commercial support is available via SpiralGen, Inc.

SPIRAL was developed over 20 years by the SPIRAL team under funding from DARPA (OPAL, DESA, HACMS, PERFECT, BRASS), NSF, ONR, DoD HPC, JPL, DoE, CMU SEI, Intel, Nvidia, and Mercury. The open sourcing of SPIRAL is an ongoing effort. The initial open source version of SPIRAL was supported by DARPA PERFECT.

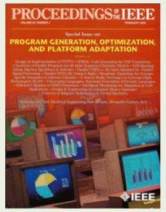
Please subscribe to spiral-info@lists.andrew.cmu.edu to stay up-to-date regarding SPIRAL updates and new releases.

- **Access the SPIRAL Tutorial here.**
- **Access the SPIRAL Manual here.**

Spiral in the Encyclopedia of Parallel Computing



Proceedings IEEE Special Issue 2005



Program Generation, Optimization, and Adaptation

Proceedings IEEE Special Issue 2018

What's Open Source AI?

Following the same idea behind Open Source Software,
an Open Source AI is a system made available under terms that grant users the freedoms to:

Use | Study | Modify | Share

Use the system for any purpose and without having to ask for permission.

Precondition to exercise these freedoms is to have access to
the preferred form to make modifications to the system, and to the means to use it.

Open Forum for AI (OFAI)

CMU Launches New Initiative for Human-Centered AI

Acknowledgements and Q&A

- Alfred P. Sloan Foundation
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