Opportunities to Improve Academic Research Through Open Research Practices

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Who am I?

University of Wisconsin-Stout

Design, robotics, medical devices

Engineering education and practice

Open engineering

WHAT

What is open research?

The rules are simple

Make the work accessible

What do you mean accessible?

Accessible is obtainable

Accessible is understandable

Accessible is reproducible

Accessible is inclusive

As open as desired

There is no wrong way to be open

Find the level of open that works

There is a community out there
willing to help!

WHY

Gold OA Hybrid OA Delayed OA Bronze OA Green OA (Only) Free Availability (Only)

To have an impact!

People can't access the work

Many institutions do not have
subscriptions

Non-academics can't understand
the work

Motivated individuals can't recreate
the work

Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.

...to aid in diffusing
among the people of the
United States useful and,
practical information...

HOW

How to be open

Make the work obtainable

Make the work understandable

Make the work reproducible

Make the work inclusive

To do this

Preprint and self-archive, publish OA

Use accessible language

Use reproducible workflows

Include diverse perspectives

There are many
resources available

figshare

Open Science Framework

GitHub

ORCID

Connecting Research
and Researchers

docker

Open Educational Resources?

Examples

Open practices can lead to some
amazing outcomes

Everything from hardware to
software to workflows.

The Story of Pat Delany, Open Source Machine Tools Advocate

GliX Stethoscope; Image

But what about patents?¹

Of course the rules of prior art still apply

In the US, preprinting may help establish priority

Is patenting the best route to having an impact?

¹I am not an attorney and this is not legal advise.

"As we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours, and this we should do freely and generously."

Barriers to adoption

Need for training and updated workflows

Career reward structures

Pressures of capitalism

Opportunities to support open (broadly)

Create an institutional mandate

Use tech transfer offices to push for
greater impact

Empower and fund university
libraries to help

Support training in open practices

Opportunities to support open (specifically)

Consider accessibility and impact of research products in T&P guidelines

Recognize contributions of software and data alongside publications

Reduce importance of “traditional” venues

Guiding Principles

Budapest Open Access Initiative

Declaration on Research
Assessment

FAIR Data Principles

Thank You!