# New Open Science Contribution? Toot it to Claim it!









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# Claim It Project – UGent/IMEC - SURF



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# SURF Research Day Presentation & Live Demo

#### New Open Science Contribution? Toot It to Claim It! 🌣

2025-05-20 11:30-12:15. On Air

Are you a researcher who wants to share an overview of your open science contributions, including papers, blogs, interviews, podcasts, teaching activities? Have you noticed that existing solutions only cover a subset? Have you no time to manually add the rest? If so, come test a prototype that lets you toot (Mastodon) the URL of your contribution to automatically add it to a trusted profile page.

A laptop is not required, a device is useful in order to participate

Research assessment approaches evolve towards evaluating your performance on the basis of a wide range of activities rather than merely relying on the traditional impact factor and citation count metrics. For this, existing efforts focus on the low hanging fruit, typically tracking contributions that have a DOI. But what about the rest? What about blogs, newspaper articles, podcasts, conference attendances, teaching activities? Obviously, as a researcher, you know when you made a new contribution. But manually adding it to your profile page is not realistic because you contribute so much. How about a solution that allows you to toot the URL of a contribution to automatically add it to your profile page? And, while you are at it, restart the informal scholarly conversation, lost when Twitter became X, on Mastodon?

If that all sounds appealing, join this session that introduces SURF's "Toot It to Claim It" prototype:

- Get an insight in the prototype's overall set-up and future plans
- Be among the first to compile a profile page by tooting about open science contributions
- Challenge the prototype by tooting different types of contributions and detect for which cases automation causes problems
- Learn about the prototype's success rate in controlled experiments
- Learn about aspects of trust provided by the prototype, including reliable attribution of toots to researchers, public logging of the claim process, archiving contribution snapshots, and profile page versioning



Thomas van Himberger

Adviseur and coordinator at SURF



Patrick Hochstenbac

My professional career spans more than 25 years in academic libraries in Belgium (Ghent), USA (Los Alamos) and Sweden (Lund). I was always involved in library automation or library science related projects as software developer, architect and more generally innovator. Since 2021 I am doing a PhD in computer science and UGent-IMEC IDLab on scholarly communication on the decentralized web.

For more information: https://patrickhochstenbach.ne/

# (Hopefully) Forthcoming Paper

### The Claims Network: Collecting Research, Education, Impact, and Leadership Claims on the Decentralized Web

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 DANS, Data Archiving and Networked Services, The Hague, The Netherlands hvdsomp@gmail.com







In February 2024, SURF organized a brainstorm to discuss potential innovative activities in the realm of scholarly communication and the distributed web.





# Claim It Project Context – SURF Meeting 02/2024

- Explore areas in which potential projects related to scholarly communication could be launched that embrace core principles:
  - Societal values
  - Decentralized web
  - Digital sovereignty







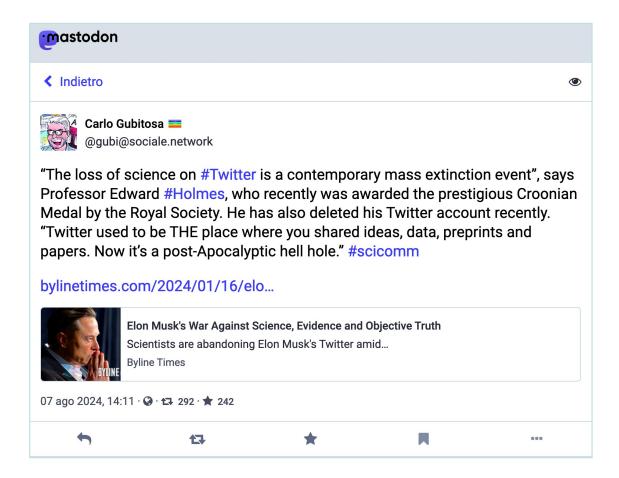
Two main and seemingly unrelated themes/challenges emerged from the meeting.

The first theme was the disappearance of informal research communication on twitter resulting from Musk's take-over. It has been characterized as a contemporary mass extinction event.





#### Theme 1: Xodus, Loss of Science Communication on Twitter



https://sociale.network/@gubi/112920672314200247
Markolin, P. (16 January 2024) Elon Musk's War Against Science, Evidence and Objective Truth https://bylinetimes.com/2024/01/16/elon-musks-war-against-science-evidence-and-objective-truth/



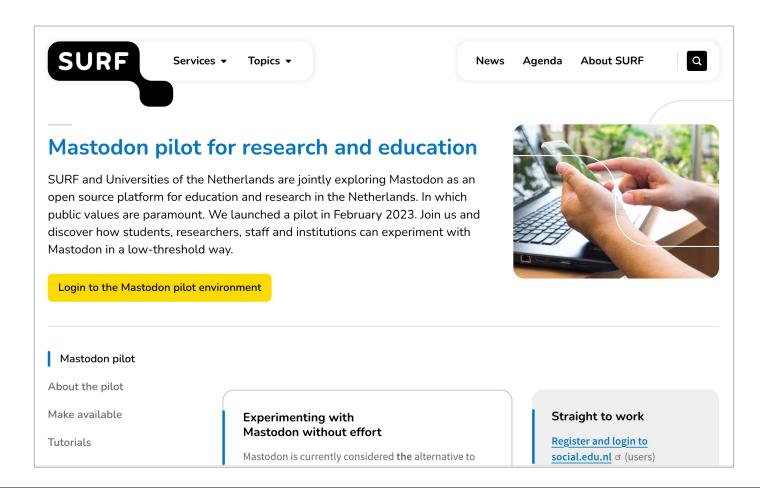
In 2024, as part of its Innovation activities, SURF set up a Mastodon instance. It has not been successful to this date, going by the "188 active users" stat.

The question hanging around the room was whether the Fediverse with its distributed Mastodon instances could provide an alternative.

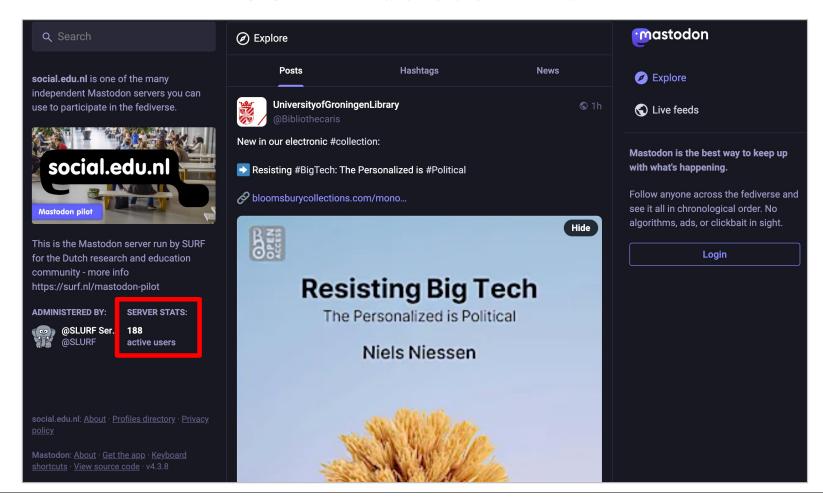




#### **SURF Mastodon Pilot**



#### **SURF Mastodon Pilot**





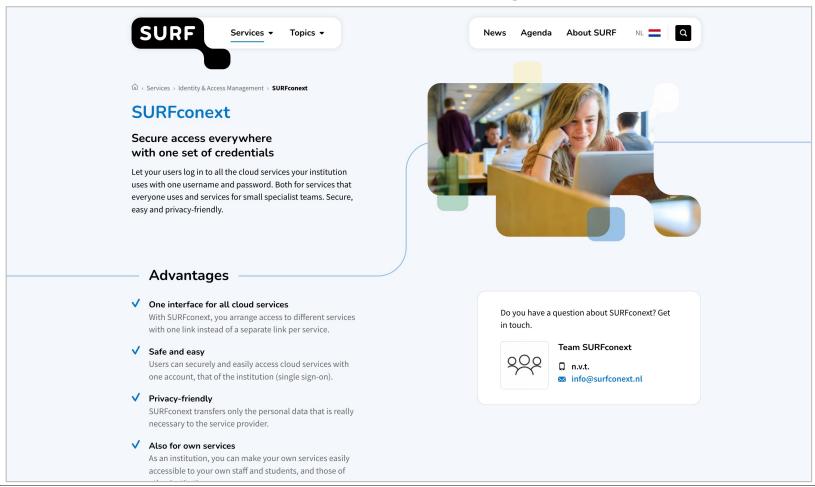
The SURF Mastodon instance has a very interesting feature with this regard: Users are registered and authenticated by means of SURFConext, the single sign-on service for high education in The Netherlands that leverages institutional identity providers. Meaning posts by users of the SURF Mastodon instance can be unambiguously attributed, traced back to an actual person who works or studies at a Dutch higher education institution. Which is very attractive from a research communication perspective.

But how to get them to join? What is the carrot?





# SURFconext Used for Mastodon Registration/Authentication



https://www.surf.nl/en/services/identity-access-management/surfconext



The second theme related to the efforts in the context of Open Science to assess researchers in novel ways, to take a broad range of activities/contributions into account for assessments.

- There is global activity in this realm, for example, under the umbrella of COARA, the Coalition for Advancing Research Assessment.
- And recently I came across a UNESCO document "Principles of Open Science Monitoring" that is in request for feedback status. It actually lists Roberto Di Cosmo as one on the contributing experts.





#### Theme 2 - Holistic Assessment of Researcher Contributions

# Coalition for Advancing Research Assessment

Our vision is that the assessment of research, researchers and research organisations recognises the diverse outputs, practices and activities that maximise the quality and impact of research. This requires basing assessment primarily on qualitative judgement, for which peer review is central, supported by responsible use of quantitative indicators.

# Call for inputs: Global Consultation on the Draft Principles of Open Science Monitoring

As part of the ongoing efforts to advance open science monitoring in alignment with the 2021 UNESCO Recommendation on Open Science, UNESCO is calling for inputs and comments from all the regions and interested stakeholders on the Draft Principles for Open Science Monitoring.

Deadline for inputs: 30 November 2024



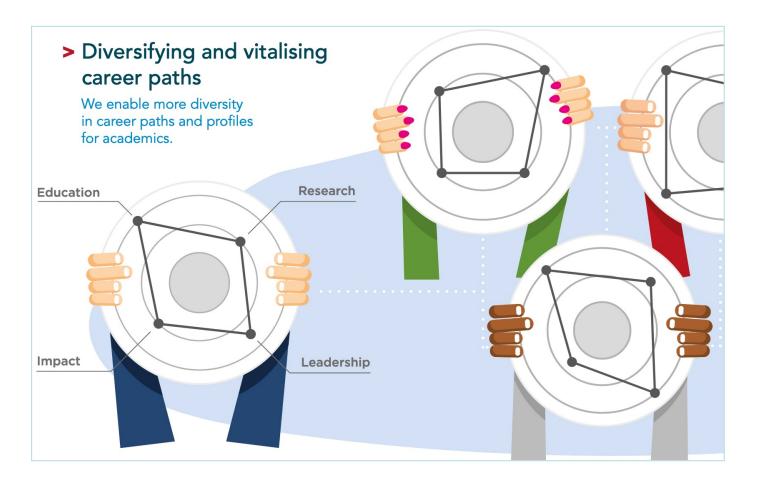


This desire to assess researchers in novel ways also very much exists in the Netherlands. And there is clear interest in areas that go beyond the creation of scholarly artifacts, including, under the "impact" umbrella penetration of research results into society, the media, i.e. a newspaper article about a researcher's work, an interview on the radio, an appearance on a TV program, etc.



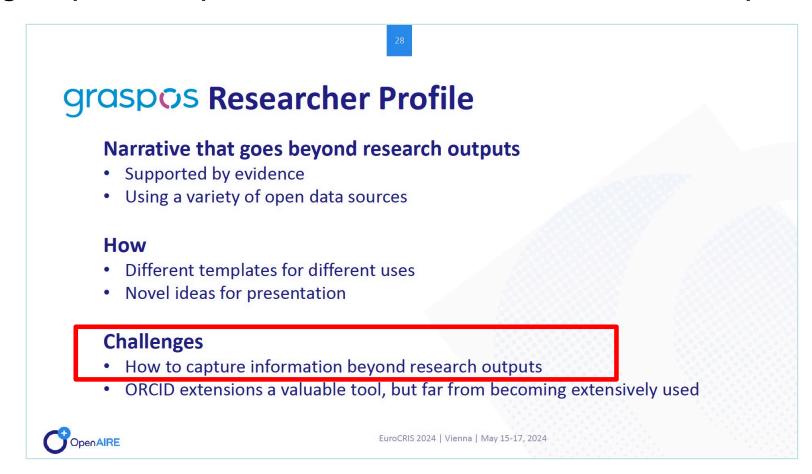


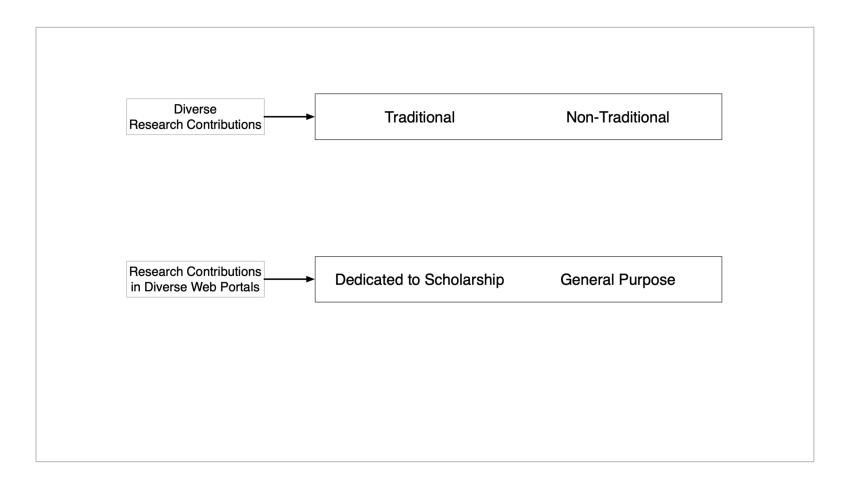
#### Theme 2 - Holistic Assessment of Researcher Contributions



VSNU, NFU, KNAW, NWO and ZonMw (2019) Room for everyone's talent: towards a new balance in the recognition and rewards of academics https://recognitionrewards.nl/wp-content/uploads/2020/12/position-paper-room-for-everyones-talent.pdf

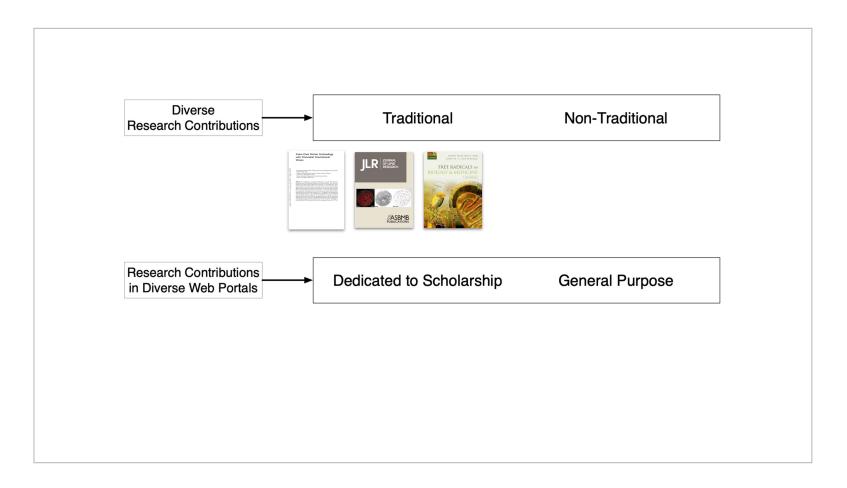
### graspos – Open Research Assessment Dataspace





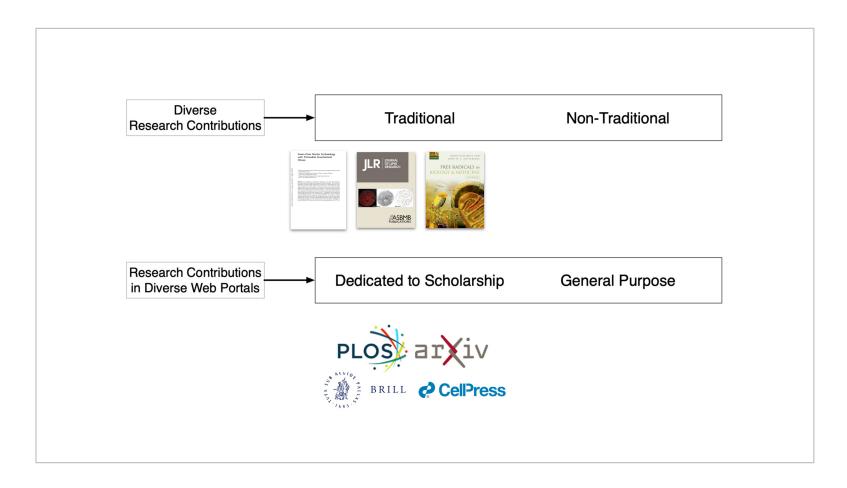






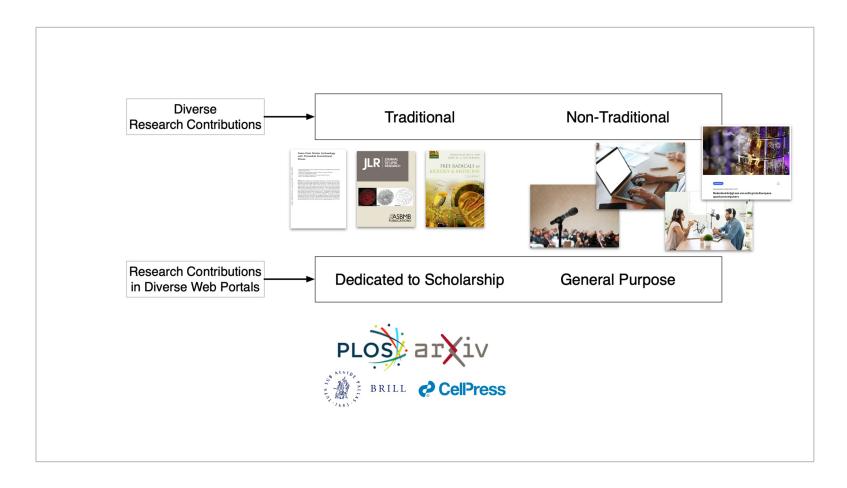






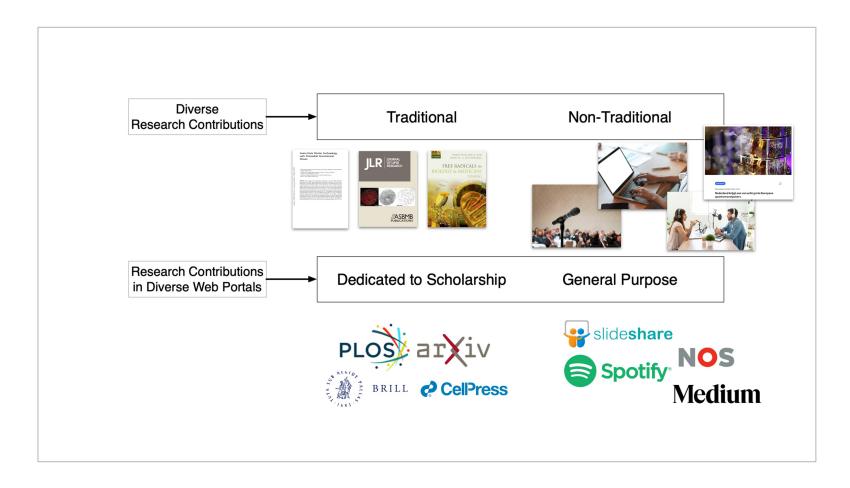






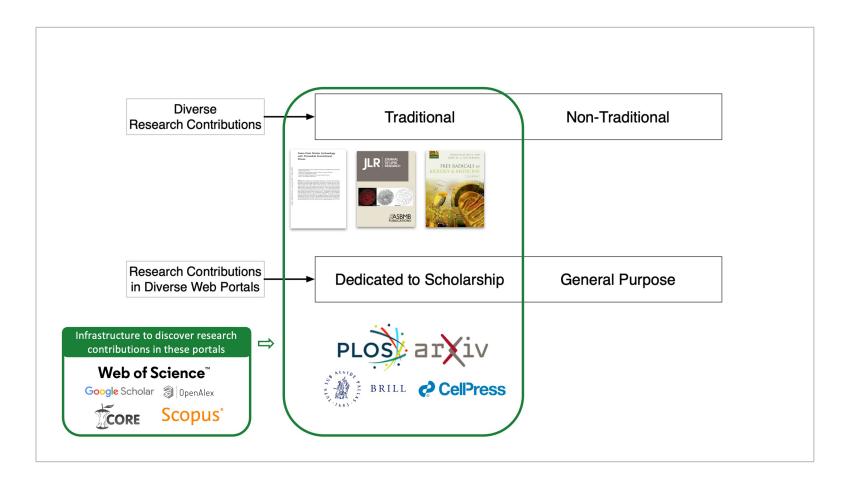






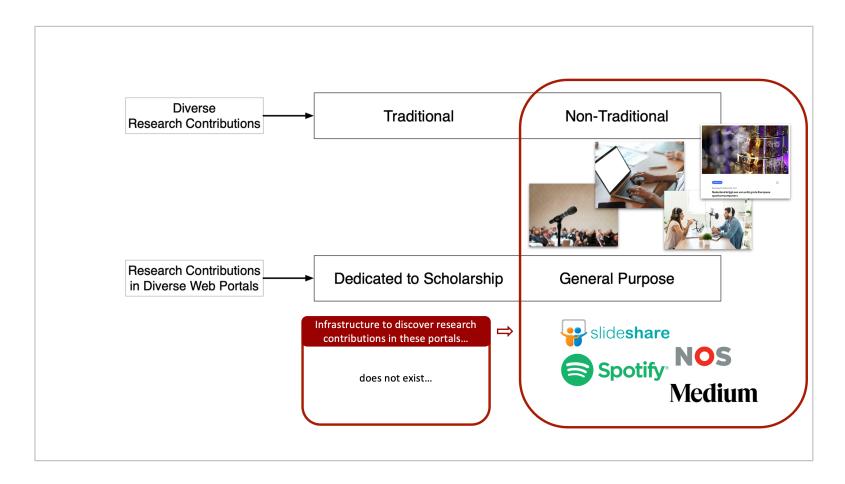


















A challenge with this regard, though, is how to get an overview of all pertinent activities/contributions in a manner that doesn't put all the burden on the researchers.

The EC-funded GRASPOS project operates in this realm and aims at generating holistic researcher profiles, for example, even including things like conference attendance. I heard OpenAIRE's Nathalia Manola talk about the project at the recent CRIS2024 conference in Vienna. She confirmed the challenge.

As we learned in the myresearch.institute perspective, one can't monitor it all. The monitoring approach can work when a select number of environments are deemed relevant but it breaks down when the environment that is to be monitored is the entire web.





### Claim It Project Context – SURF Meeting 02/2024

- Build a prototype for a solution that:
  - Addresses the problem of finding research contributions needles in the web haystack
  - Can be a catalyst to (re)start information scholarly communication on social media
- Inspiration from prior work:
  - myresearch.institute experiment (2018-2020)
  - bots on Twitter







Overall the considerations at the basis of the project were that:

- Researchers use a variety of web platforms for collaboration and communication
- They use platforms that are dedicated to scholarship as well as general purpose
- The researchers' institutions are not aware of contributions made in general purpose portals and many times also not of those in scholarly portals that deal with less traditional contributions.
- Although contributions are not systematically archived, institutions have an incentive to obtain broad coverage of the contributions of their researchers. After all, institutions have set up institutional repositories and/or CRIS systems to cover contributions by their researchers to the research literature. Institutions have started setting up repositories to cover research data. It seems like a logical next step for institutions to start looking into systems that can cover a broader range of their researchers' outputs.





# myresearch.institute Experiment - Considerations

- Researchers use a variety of web platforms for collaboration and communication.
- They use platforms that are dedicated to scholarship as well as general purpose.
- The researchers' institutions are not aware of contributions made in general purpose portals.
- Institutions have an incentive to obtain broad coverage of the contributions of their researchers.







We decided to explore the potential of the Personal Web Observatory approach in an institutional setting, i.e. institutions operate infrastructure to automatically track contributions of researchers in web portals.

We created a fictitious research institution and populated it with 16 researchers who had given their consent to track them across a range of portals.

In our institutional observatory, the researchers were uniquely identified by means of their ORCID and in each portal they had a web identity that our observatory knew about. That is essential to be able to track them.





# myresearch.institute Experiment - Researchers

- 16 researchers
- Uniquely identified by ORCIDs
- Web identities in multiple portals
- Make a variety of contributions









We selected 11 portals in which to track our researchers. Some are general purpose portals and some are focused on research: hypothes.is, blogger, slideshare, wordpress, github, figshare, wikipedia, home page, publons, stack overflow, ...

10.187 unique contributions were tracked between August 2018 and March 2020.





# myresearch.institute Experiment - Portals

- 11 portals
- Tracking started August 2018
- Tracking ended March 2020
- 10.187 unique contributions tracked









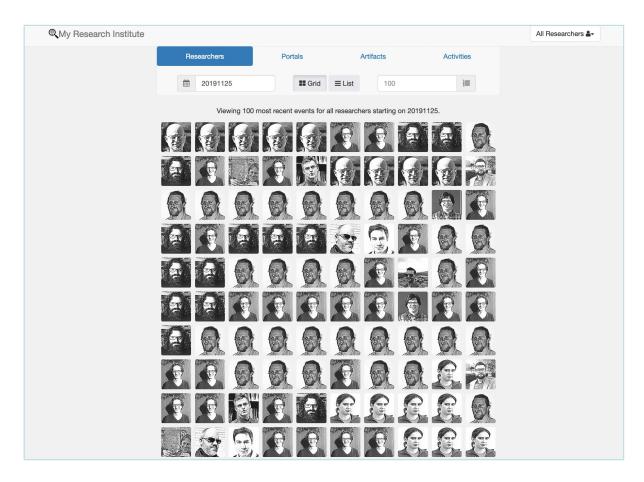
The event store was gradually populated over time and a user interface, rather inspired by Amy Guy's personal web observatory, allowed getting an overview of our researcher's contributions.

It provided ways to get a chronological overview of contributions by all researchers, organized by the researcher who made the contribution, the portal, the contribution type, and the activity type. It also allowed to zoom in on a single researcher.





# myresearch.institute - Contributions - Researcher View





And there are also a few insights gained from this effort that informed the overall approach of the mycontributions.info experiment that I will talk about in a bit:

- It's not just institutions that do not know about researcher
  contributions in those web portals. The researchers know they make
  them but loose track of it all. As such, they much appreciated the
  overview provided in the institutional web observatory. They even
  asked whether our experimental setup had an API so they could get
  their stuff out.
- One can track only so many portals and obviously researchers will make contributions to portals that were not tracked
- Not all tracked contributions seem to be scholarly; there's definitely a mix of private and scholarly on general purpose platforms





### myresearch.institute - Insights Gained

- Researchers don't remember all the contributions they make and as such much appreciated the overview provided in the institutional web observatory
- Researchers make contributions to portals that were not tracked; can't track them all
- Not all tracked contributions seem to be scholarly; there's definitely a mix of private and scholarly on general purpose platforms







So, one needs to turn the whole thing around. And that was a major insight of the brainstorm at SURF: instead of detecting researchers' traces by monitoring portal APIs, have researchers themselves announce them, in the case of the SURF experiment by posting about them on Mastodon.

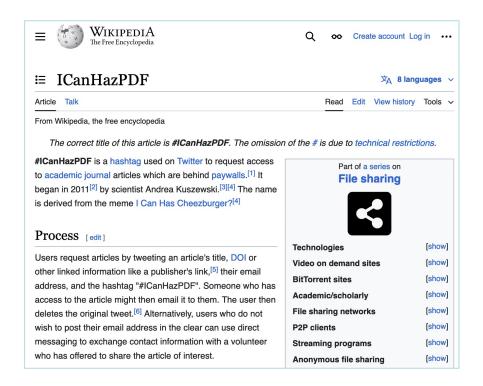
The specific approach chosen draws inspiration from tools that had been created on Twitter, such as #ICanHazPDF to obtain a copy of a research article that sits behind a paywall and @icanhazmemento to request the creation of a Memento for a certain URL. In this case, researchers will post about resources that they consider their contributions.

The incentive for the researcher to post is to obtain holistic data that can be used for assessments but, honestly, also to just keep track of what they've been up to. And the hope is that the carrot of the contribution list will be sufficient to attract Dutch researchers to Mastodon and start informal research communication there. We will learn whether that hope is justified once SURF decides on a community in which to run a pilot.

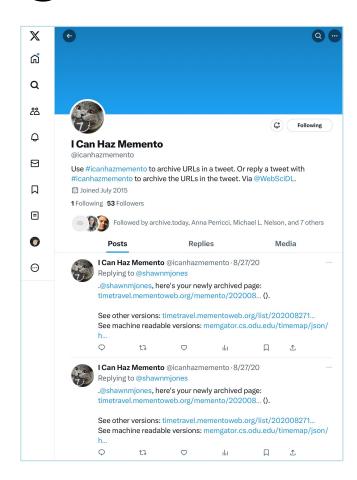




### #ICanHazPDF



### @icanhazmemento



## Claim It Prototype - Overview



publieke waarden







research contributions









Here's a high-level overview of the the design of the experimental setup that Patrick is currently working on.

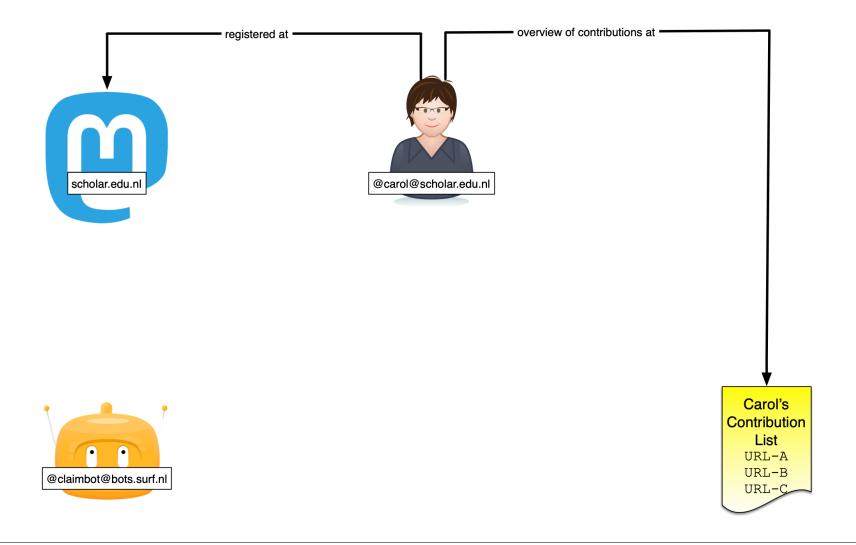
I am registered with the SURF Mastodon instance.

I have a Contribution List.

There's also a bot in the Fediverse – the claimbot - that accepts requests from users registered at the SURF Mastodon instance.









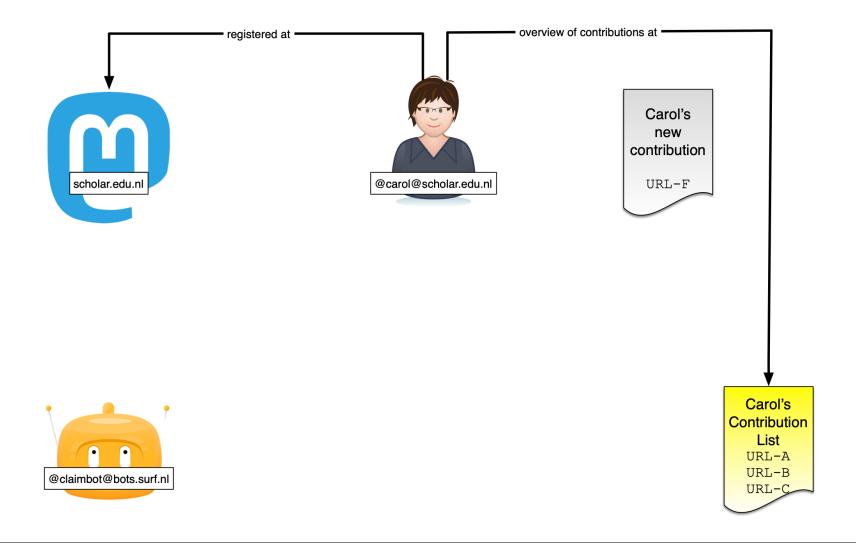




Let's now introduce a new contribution I made, which I want to claim.









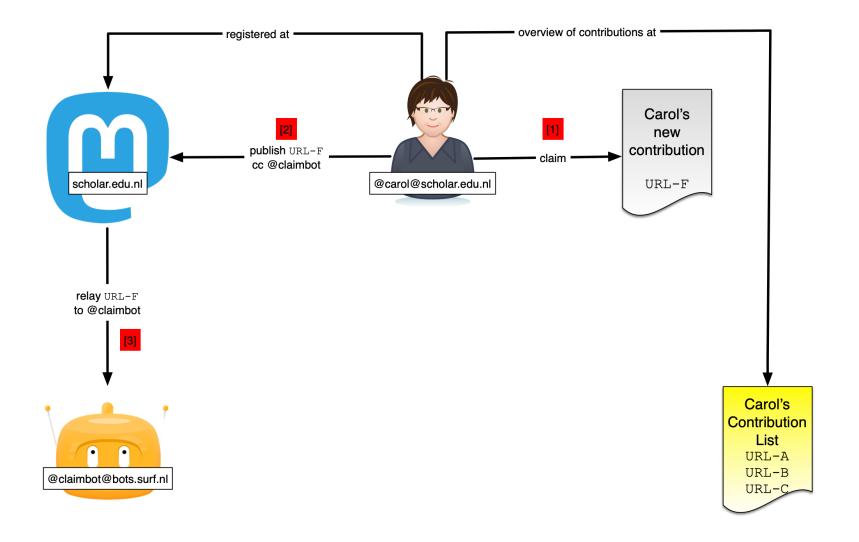




So, I am going to create Mastodon posts with the URL of these pages and I will target them at the claimbot.













- Prior to the Conference, I express my excitement to be speaking
- After the talk, I share my slides

Note that I have sent these as private messages so as to not spam the SURF Mastodon instance. But in reality I would send these publicly so that any one can see my new contributions.





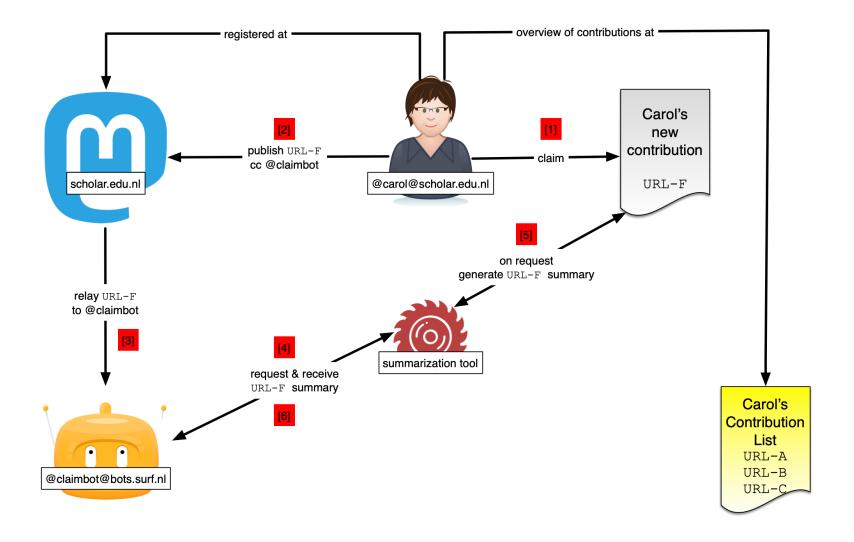


The claimbot receives the post, checks whether it originates from someone registered with the SURF Mastodon instance, and if so, calls a service that automatically extracts pertinent metadata about the contribution.

That information extraction is not conducted by calling APIs as was the case in myresearch.institute but by obtaining information via the contribution page.









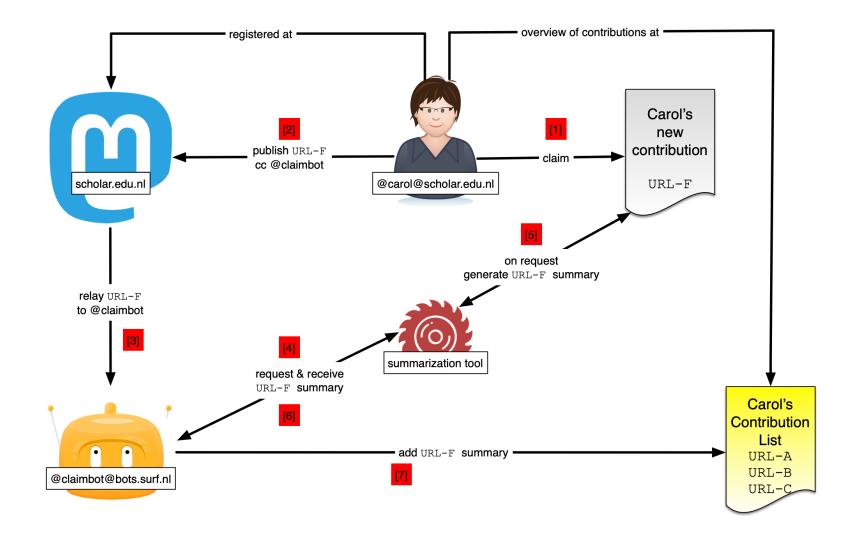




The claimbot adds an entry for these new contributions to my Contribution List.











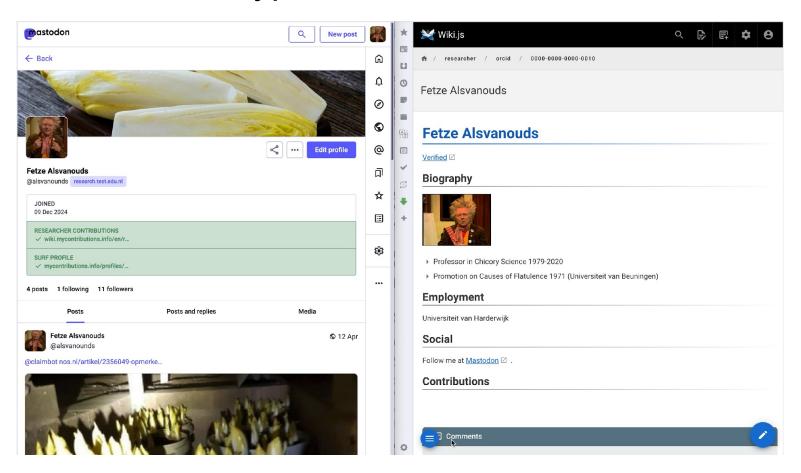


As you can see the two new contributions were added to my Contribution List. The metadata extracted is pretty minimal in this case but there's at least an entry for the contributions.





### Claim It Prototype - Screencam Demonstration







### Claim It – Next Steps

- Pilot with Hogescholen
- Addressing challenges
- Devising generic architecture that allows for diverse yet compatible implementations
- Advocacy for implementations in other countries/communities





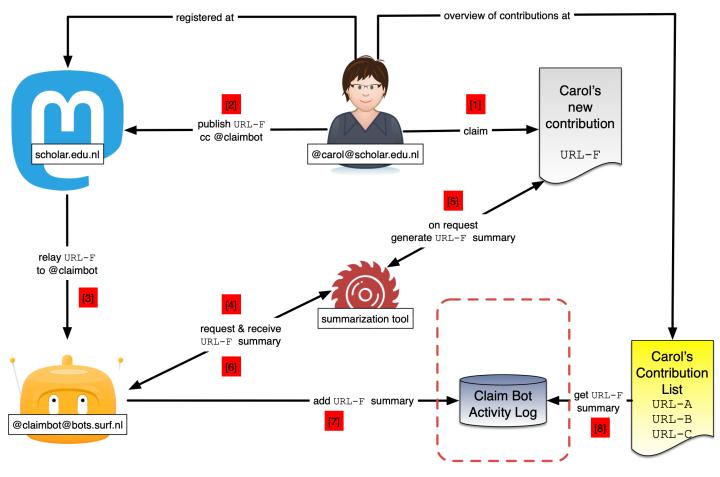
### Claim It – Next Steps

- Integration with existing repositories
- Use of open interoperability protocols
- Identity verification
- Trusted archiving of (traces of) research contributions
- Summarization challenges





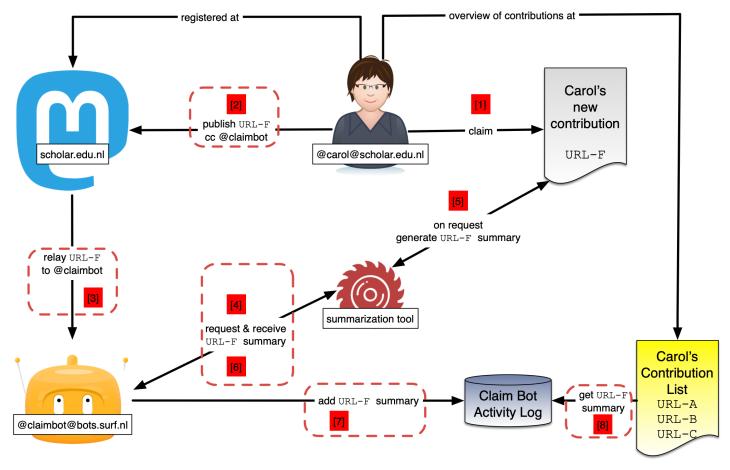
# **Repository Integration**







## Use of Open Interoperability Protocols









The communication between the claimbot and the extraction tool uses the notification approach described in the Event Notifications in Value-Adding Networks specification authored by Patrick Hochstenbach and colleagues.

The approach is itself based on Linked Data Notifications and ActivityStreams2 vocabulary and is, among others, also used in the COAR Notify project for communication between repositories and overlay peer-review services. But the notification approach is increasingly attracting attention for other use cases such as requesting archiving of resources, requesting/announcing augmentation of metadata, registration of datasets in registries, etc.





### Mastodon

### **ActivityPub**

W3C Recommendation 23 January 2018



https://www.w3.org/TR/2018/REC-activitypub-20180123/

#### Latest published version:

https://www.w3.org/TR/activitypub/

#### Latest editor's draft:

https://w3c.github.io/activitypub/

#### Test suite:

https://test.activitypub.rocks/

#### Implementation report:

https://activitypub.rocks/implementation-report

#### Previous version:

https://www.w3.org/TR/2017/PR-activitypub-20171205/

#### **Editors:**

**Christine Lemmer-Webber** 

Jessica Tallon

#### Authors:

**Christine Lemmer-Webber** 

Jessica Tallon

Erin Shepherd

**Amy Guy** 

**Evan Prodromou** 



### **Activity Streams 2.0**

W3C Recommendation 23 May 2017



#### This version:

https://www.w3.org/TR/2017/REC-activitystreams-core-20170523/

#### Latest published version:

https://www.w3.org/TR/activitystreams-core/

#### Latest editor's draft:

http://w3c.github.io/activitystreams/core/

#### Test suite:

https://github.com/w3c/activitystreams/tree/master/test

#### Implementation report:

https://github.com/w3c/activitystreams/tree/master/implementation-reports

#### Previous version:

https://www.w3.org/TR/2017/PR-activitystreams-core-20170413/

#### **Editors:**

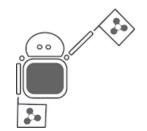
James M Snell, IBM

Evan Prodromou, Fuzzy.ai

### **Event Notifications in Value-Adding Networks**

# **Event Notifications in Value-Adding Networks**

Living Document, 6 September 2023



#### This version:

https://www.eventnotifications.net

#### Latest published version:

https://www.eventnotifications.net

#### **Previous Versions:**

https://www.eventnotifications.net/0.1/

#### Feedback:

Inline In Spec

#### **Editors:**

Patrick Hochstenbach (Ghent University Library)

Miel Vander Sande (meemoo - Flemish Institute for Archives)

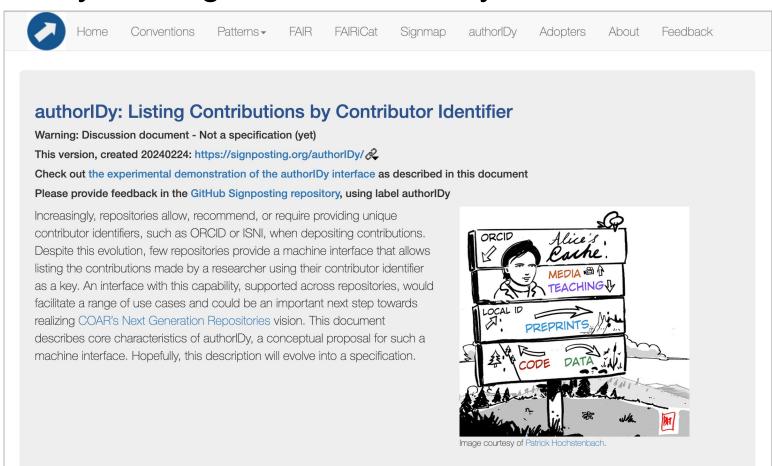
Ruben Dedecker (IDLab - Ghent University)

Paul Walk (Antleaf)

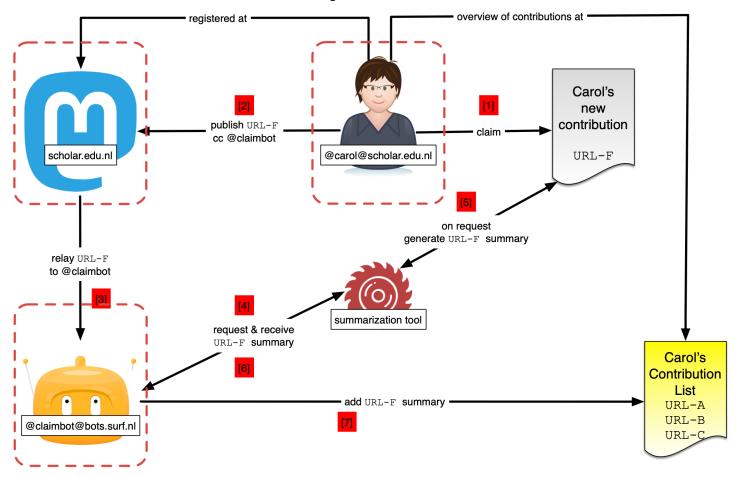
Martin Klein (Los Alamos National Laboratory)

Herbert Van de Sompel (IDLab - Ghent University)

### authorIDy: Listing Contributions by Contributor Identifier



### **Identity Verification**







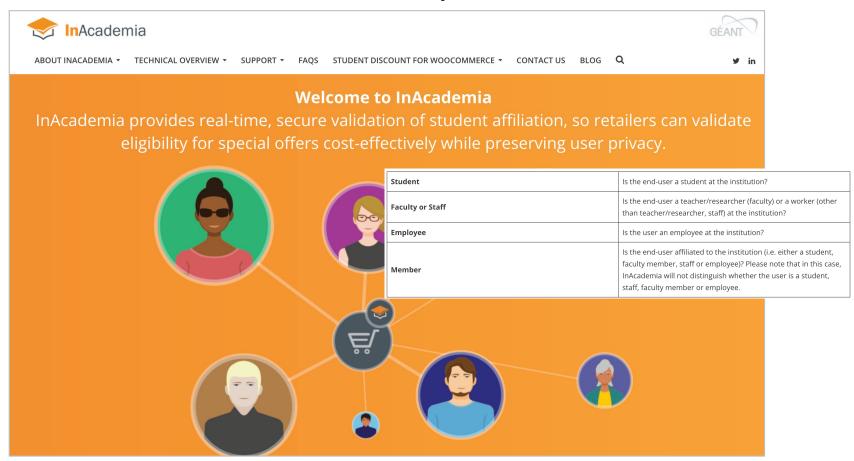
### **Identity Verification**

- Mastodon natively supports rel="me" identity verification
  - demonstrates that the user with a given Mastodon account has editing rights to a given webpage
- Additional academic verification is required:
  - to allow extending the approach to other Mastodon instances (that don't have something like SURFconext identification)
  - to allow the claim bot to determine whether it will accept to process a claim
  - to be able to attribute informal scholarly scholarly communication on Mastodon to a person with verified academic affiliation

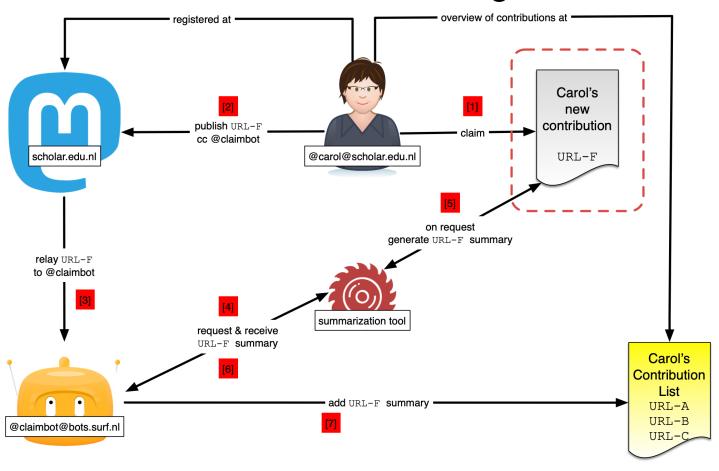




### InAcademia Experiment



### **Trusted Archiving**







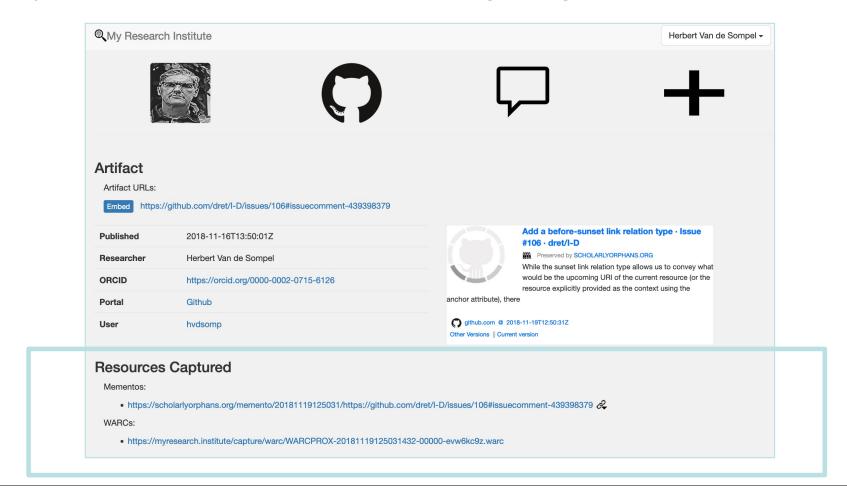
### **Trusted Archiving**

- As a means to compensate for
  - link rot and content drift
  - metadata extraction challenges
- Not necessarily archiving the contribution itself, but (at least) a trace of the contribution
  - The URL that was tooted
  - Think: difference between landing page and the actual contribution linked from the landing page

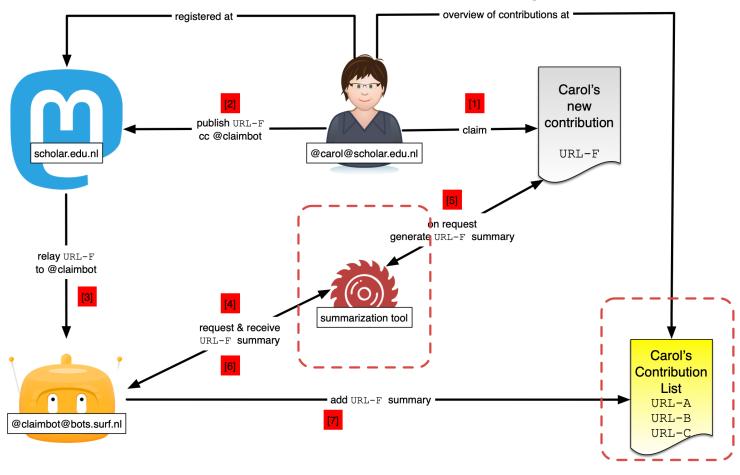




### myresearch.institute - Landing Page for Contribution



## **Summarization Challenges**







### Summarization Challenges - Metadata Extraction

- Experiment using URLs from toots by 100 researcher as research contribution claims
- Total URLs 555; for 54 no metadata could be extracted
- Success rate for metadata extraction depends on the type of web resource for which metadata is scraped

	title	abstract	language	author	date published
webpage	335 = 99%	152 = <mark>45</mark> %	144 = 42%	44 = 13%	118 = 35%
post weblog	40 = 100%	34 = 85%	35 = 88%	25 = 63%	33 = 83%
motion picture	11 = 100%	9 = 82%	0	11 = 100%	11 = 100%
article- newspaper	23 = 100%	23 = 100%	23 = 100%	19 = 83%	23 = 100%
article- journal	56 = 100%	48 = 86%	47 = 84%	56 = 100%	56 = 100%

### Summarization Challenges – Closed Repositories

#### A Word of Caution

- Imagine Notify, Event Notifications, Signposting, etc. becoming hugely successful
- Imagine zillions of actions by bots involved in notifications, automated interactions, ...
- Such a success will undoubtedly attract unethical bots
- Add that to the alarming problems that repositories already face because of voracious and unethical LLM bots
- ... we are at risk that open repositories close their doors to machine interactions



**COAR Annual Meeting** 

Göteborg, June 7 2024







### Summarization Challenges – Closed Repositories



#### herbert

@hvdsomp@w3c.social

Remember how the origins of #FAIR are all about machine access to scholarly objects? And how the A stands for Accessible? Well, despite all the megaphoning about FAIR, scholarly objects are rapidly becoming less accessible to machines. Because repositories are increasingly blocking machine access in order to protect themselves from aggressive Al bots. To achieve FAIR, an urgent focus on addressing this challenge is needed. And, no, PIDs are not the solution however much you'd love them to be.

Mar 13, 2025, 07:00 PM



29 boosts · 15 favorites





### **Aggressive AI Bots**

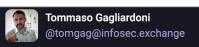
go to hellman

- Ignore robots.txt
- Exhaust server connection space
- Use large blocks of IP addresses
- Use randomly generated, spoofed, user agent strings

### Al bots are destroying Open Access

### Aggressive Al Bots – Not Just Scholarly Repositories





In a move that surprises absolutely noone, GitHub now requires users to login in order to browse public repositories (including open source projects). After a few (~10) requests, you get blocked (I can confirm). In order to fight AI scrapers, I guess.

So, GitHub decided to blanket-limit access to open source projects as a defense against the very scourge that they(r parent company) unleashed on the world.

I won't be hypocrite: it's a bit embarrassing, but undeniably satisfying to say "told you so". I moved away from GitHub long ago and I moved all my stuff to Codeberg instead. And so happy I did!

Next step: radicle.xyz maybe?

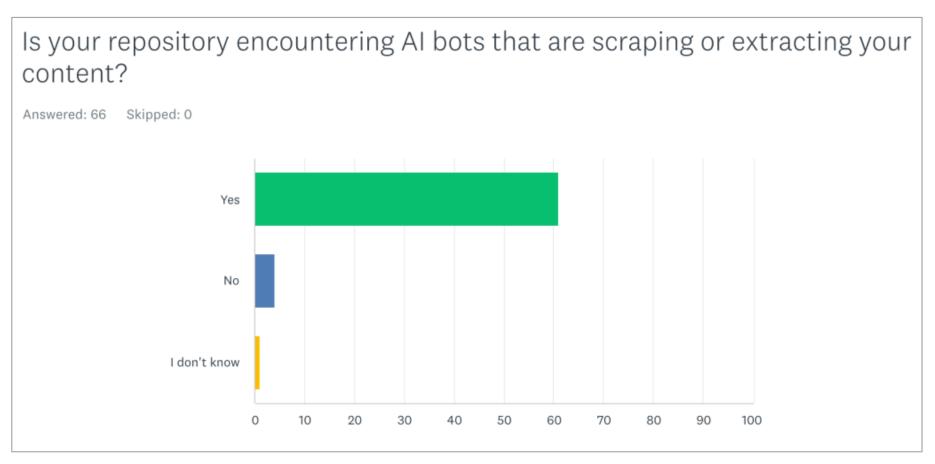
github.com/orgs/community/disc...

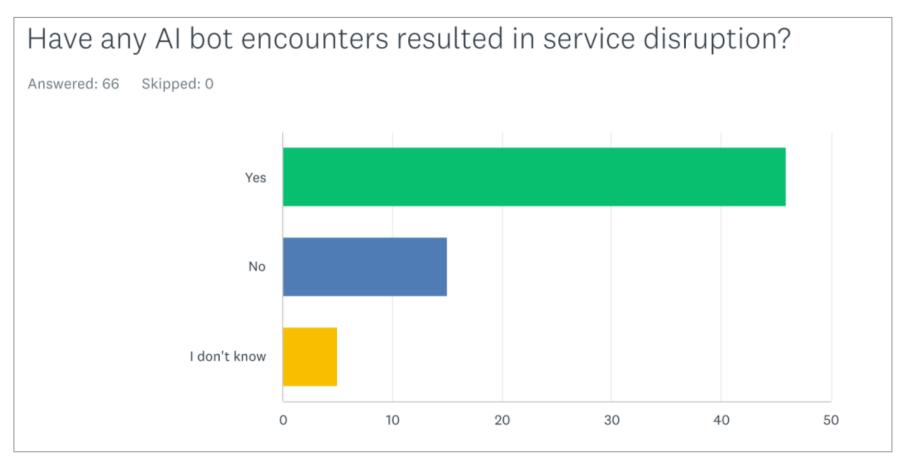
# Whoa there!

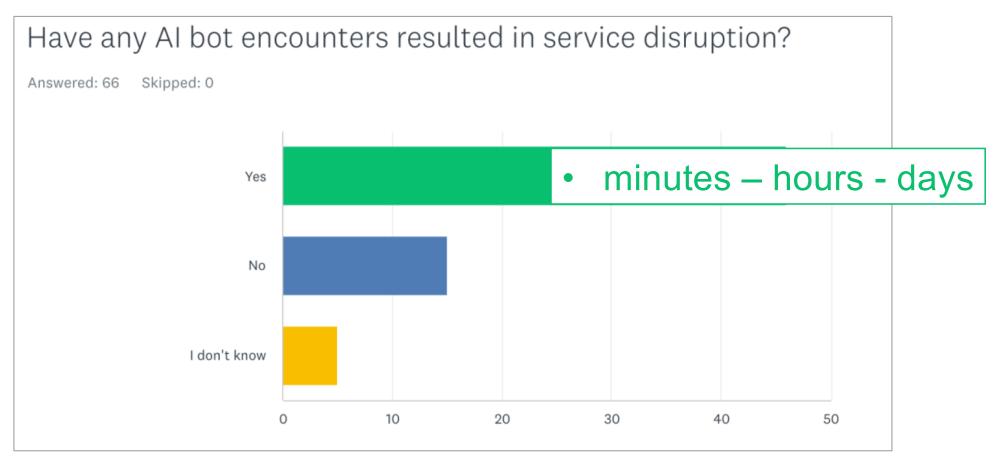
Hide

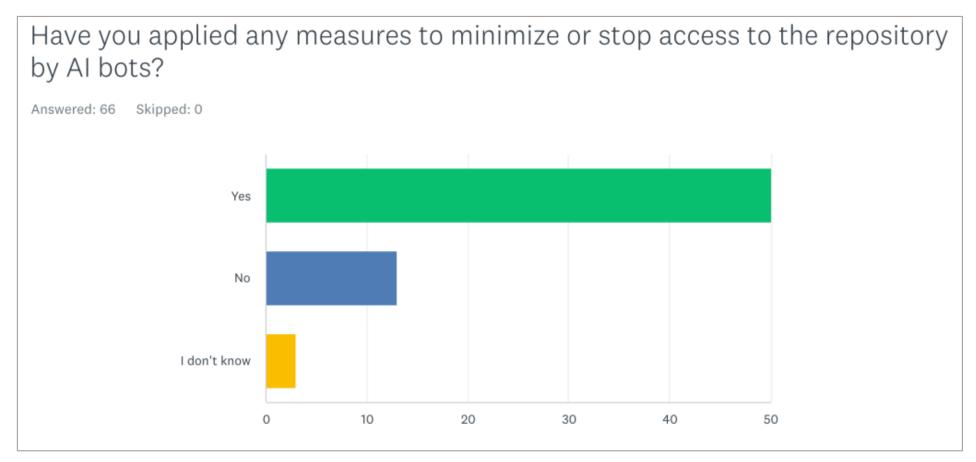
You have exceeded a secondary rate limit.

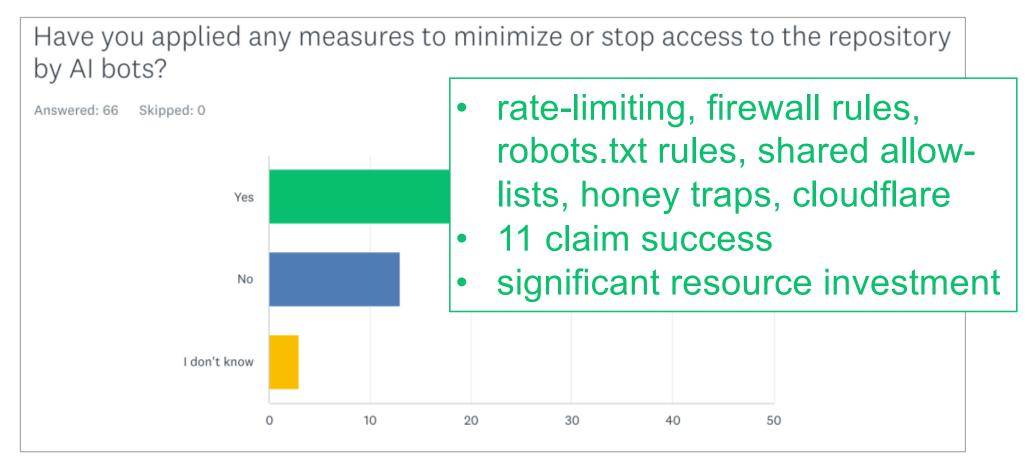
Please wait a few minutes before you try again;

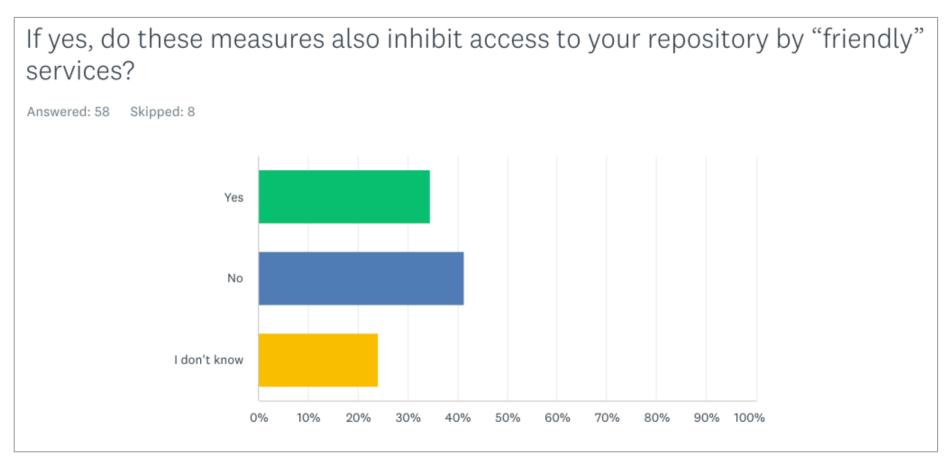


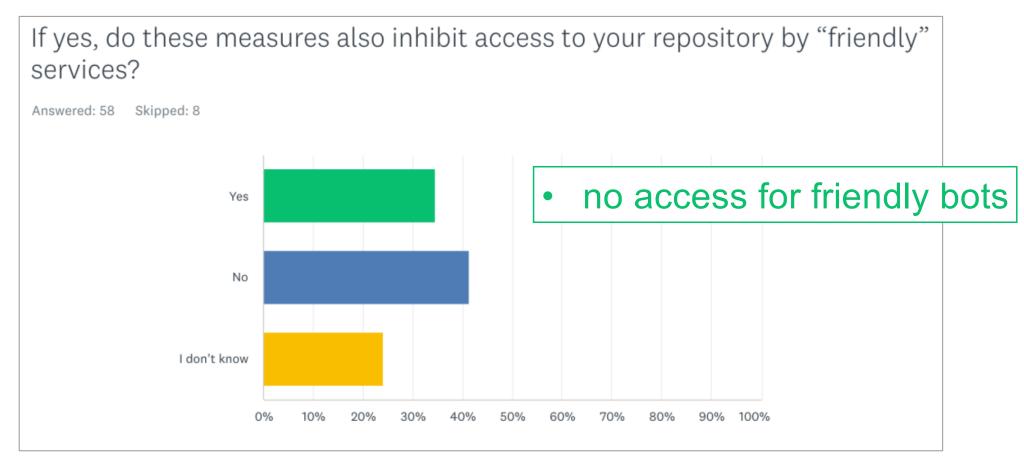




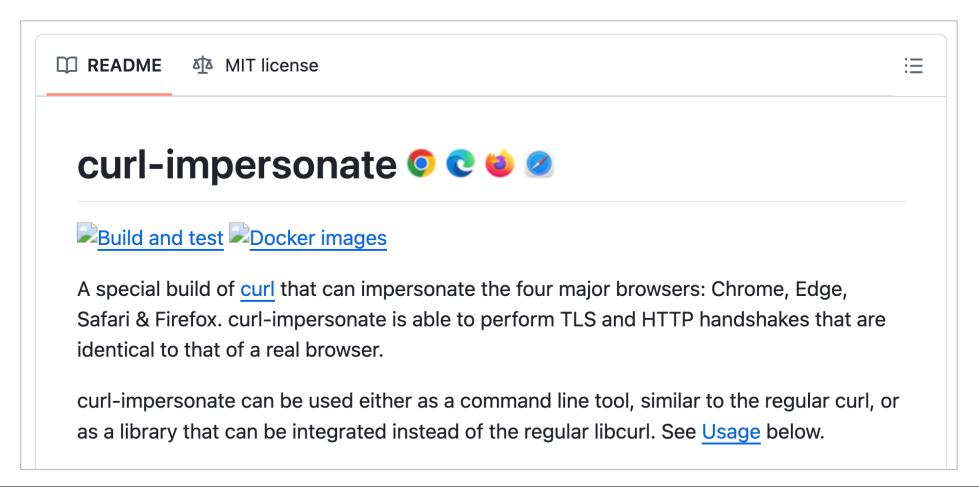








### Summarization Challenges – Bot Impersonates a Human



### Aggressive Al Bots – Ongoing/Planned Activities

- COAR Task Force on Managing Al Bots in Repositories
  - gain understanding of current approaches to handle Al bots
  - review potential solutions aimed at keeping repositories open
  - develop recommendations for the repository community
- IETF Al Preferences
  - expressive extension of robots.txt
  - legally binding?
- IETF web bot authentication
  - more reliable bot identification than e.g. IP address, user agent
  - using certificate infrastructure
  - one-off bot access?

# New Open Science Contribution? Toot it to Claim it!









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