



SCIENCE AND SOCIAL MEDIA

A guide for scientists in the hyper-connected era

XX SIPAV National Conference

Pisa - September 22, 2014

Lorenzo Mannella



credits: Christine/Flickr

About me



**Lorenzo
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MSc in Biotechnology**

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UNIMORE**

 **@Loremann**

Summary

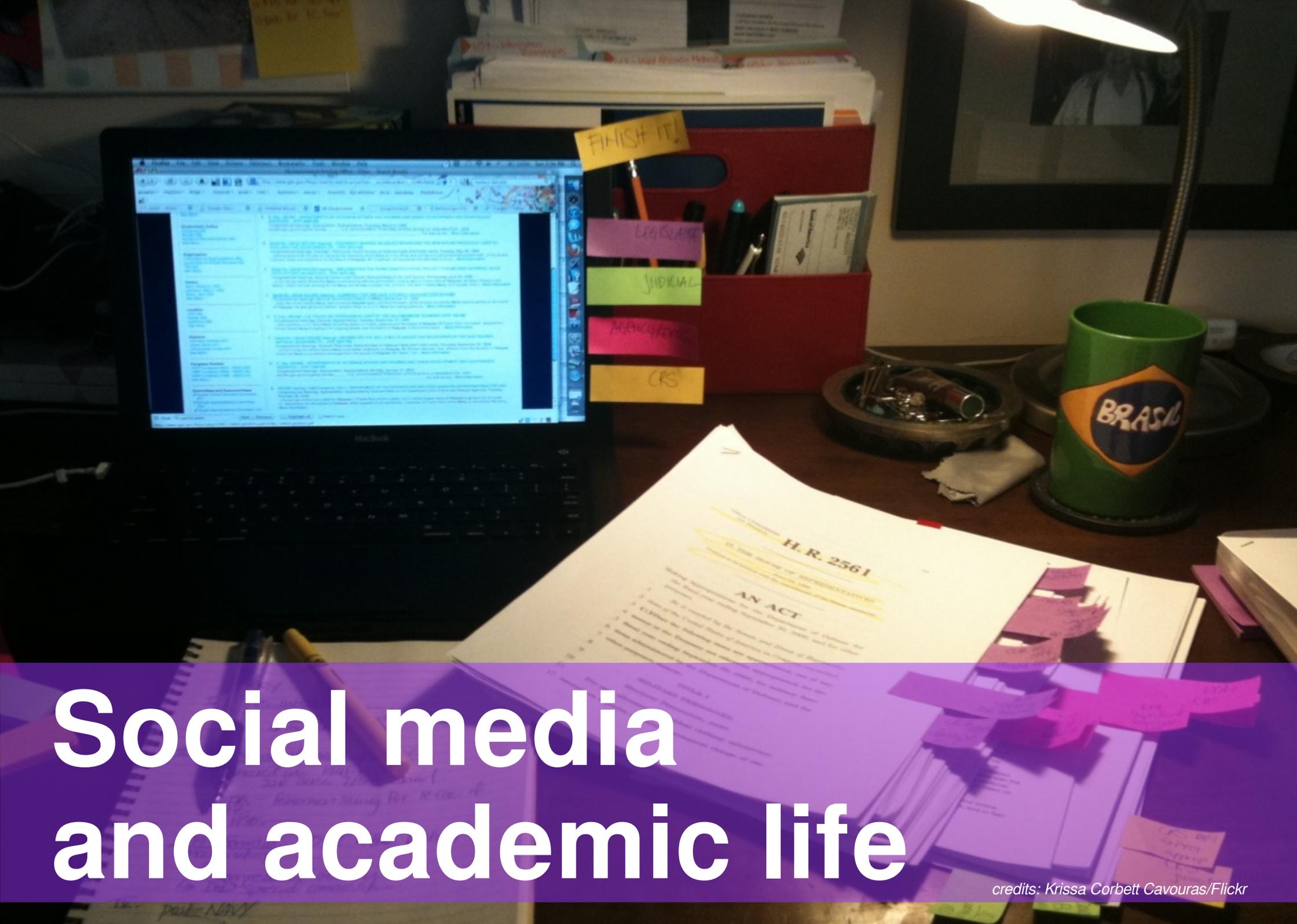
1. Social media and academic life

2. Social tools for science

3. Social media in the lab

4. Social experiments

5. Social media for scientists



Social media and academic life

credits: Krissa Corbett Cavouras/Flickr

The nature of Nature



Nov 4, 1869

A WEEKLY ILLUSTRATED JOURNAL OF SCIENCE

[^ Top](#)

"To the solid ground Of Nature trusts the mind which builds for aye."
-- WORDSWORTH

'The objective which it is proposed to attain by this periodical may be broadly stated as follows. It is intended, First, to place before the general public the grand results of scientific work and scientific discovery; and to urge the claims of science to move to a more general recognition in education and in daily life.

'Secondly, to aid scientific men themselves, by giving early information of all advances made in any branch of natural knowledge throughout the world, and by affording them an opportunity of discussing the various scientific questions which arise from time to time.'

Informal peer review in the 1950s

Joint Editor 'Jack' Brimble would stuff his pockets with papers submitted to *Nature* and take them with him to the exclusive *Athenæum Club*. Brimble would then quiz other scientific members of the club over luncheon or coffee on the merits of particular manuscripts. It was an imperfect system with many flaws, but the beginning of a review system nonetheless.

Source: *Nature*

The map of knowledge, today



credits: David Parkins/The Economist

Numbers you should care of



 OPEN ACCESS

PERSPECTIVE

93,998

VIEWS

16

CITATIONS

402

SAVES

3,013

SHARES

An Introduction to Social Media for Scientists

Holly M. Bik , Miriam C. Goldstein

Published: April 23, 2013 • DOI: 10.1371/journal.pbio.1001535

Article

About the Authors

Metrics

Comments

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▶ Research Benefits from an Online Presence

Defining Goals and Choosing among Online Tools

Long-term Needs and Outlook

Figures



 CrossMark

Subject Areas 

Communications 

What does 'online attention' mean?

Article metrics for:



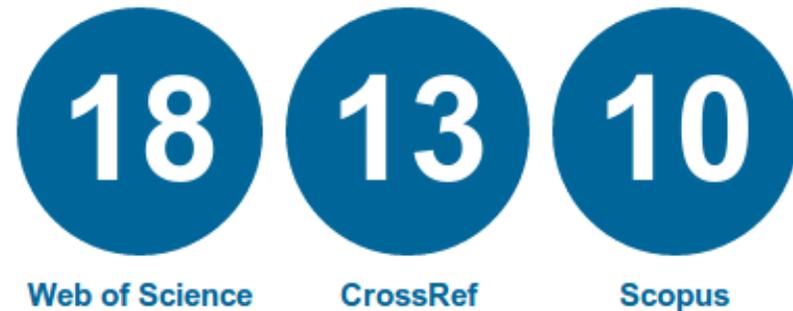
The biological impacts of the Fukushima nuclear accident on the pale grass blue butterfly

Atsuki Hiyama, Chiyo Nohara, Seira Kinjo, Wataru Taira, Shinichi Gima, Akira Tanahara & Joji M. Otaki

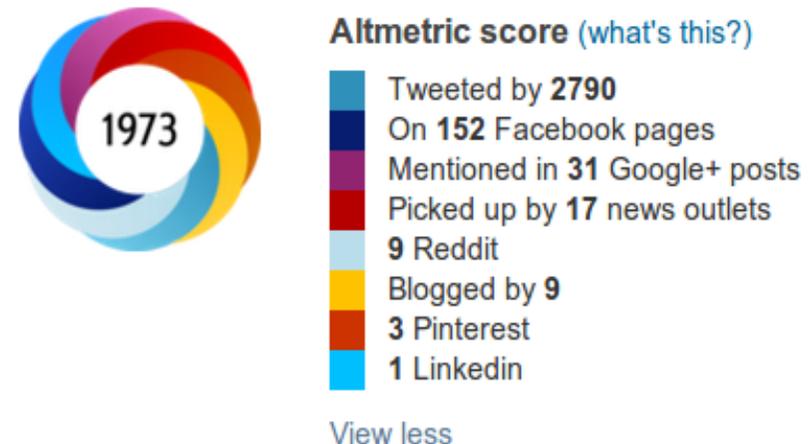
Scientific Reports 2, Article number: 570 (2012) | doi:10.1038/srep00570

Last updated: 17 September 2014 13:19:28 EDT

Total citations



Online attention



This Altmetric score means that the article is:

- in the 99 percentile (ranked 3rd) of the 68,929 tracked articles of a similar age in all journals
- in the 99 percentile (ranked 1st) of the 179 tracked articles of a similar age in *Scientific Reports*

SOCIAL
NETWORKS

Social tools for science

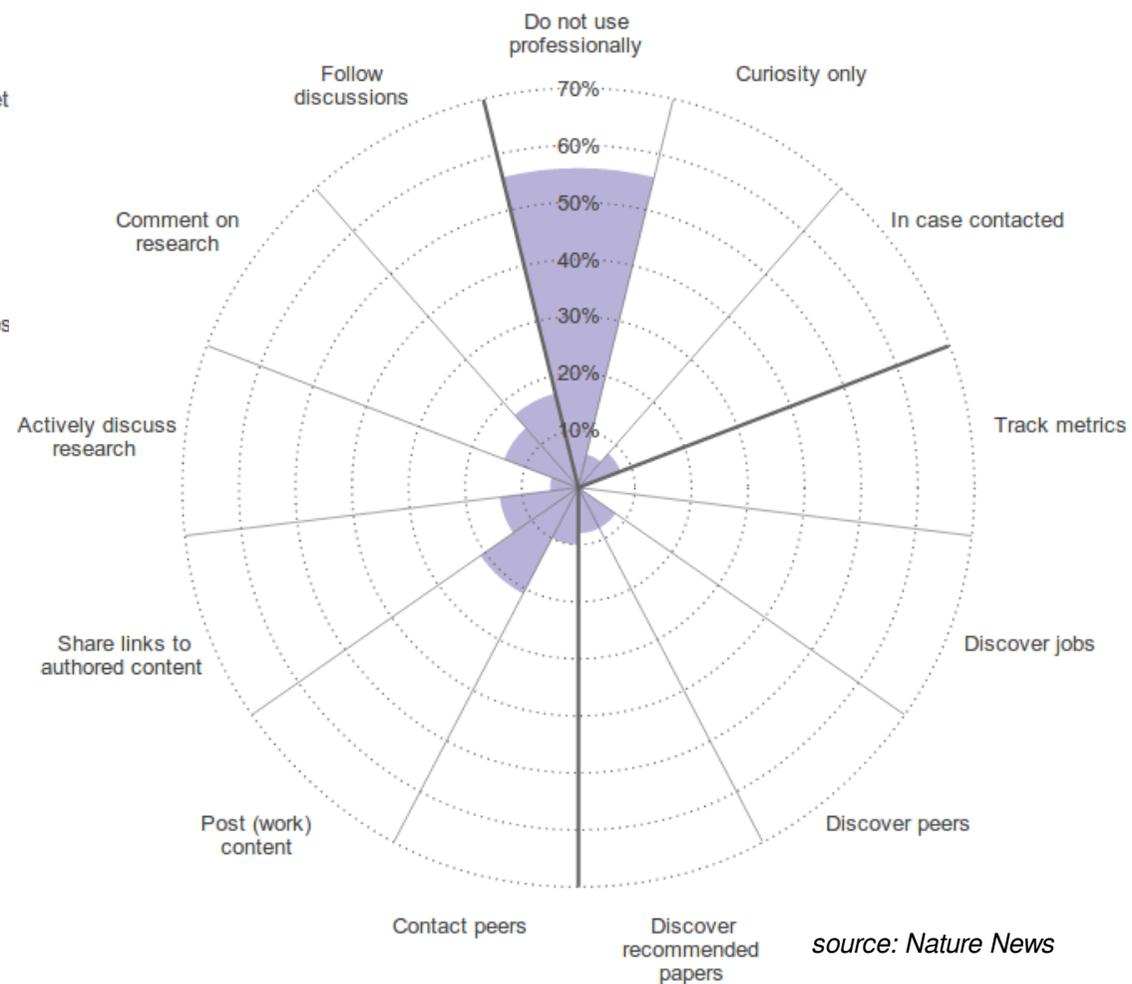
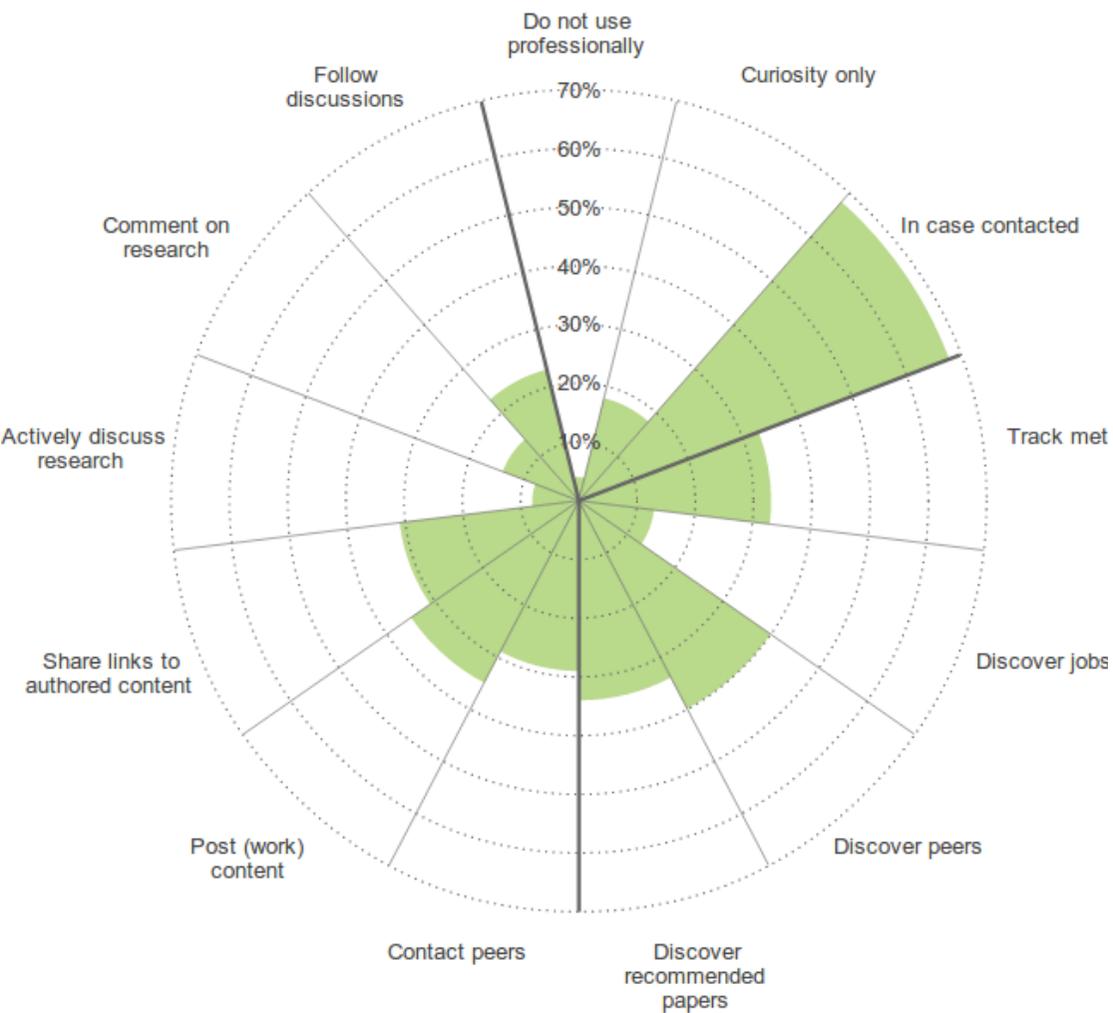
Your social toolbox at a glance



Table 1. Comparison of Online Tools.

Platform	Pros	Cons
Blogs	<ul style="list-style-type: none">• Longevity; posts are accessible via search engines• Robust platform for building an online reputation	<ul style="list-style-type: none">• Time investment for preparing thoughtful posts• Posts should be disseminated and advertised via other platforms
Twitter	<ul style="list-style-type: none">• Low time investment, short posts• Ability to rapidly join in on online conversations• The most current source for breaking news and topical conversation	<ul style="list-style-type: none">• Posts are quickly buried under new content• Twitter does not make its archive database accessible to search• Gaining followers can be a slow and difficult process
Facebook	<ul style="list-style-type: none">• Established juggernaut in the social media world• Ability to create "groups" and "pages" for a person or cause	<ul style="list-style-type: none">• Privacy concerns• Frequent changes to layout, features, and settings
Google+	<ul style="list-style-type: none">• Integration with Google tools• Easily manage privacy/visibility by grouping contacts into "circles"	<ul style="list-style-type: none">• User base not unique compared to other sites• Users still unsure how to use it

Your social toolbox at a glance



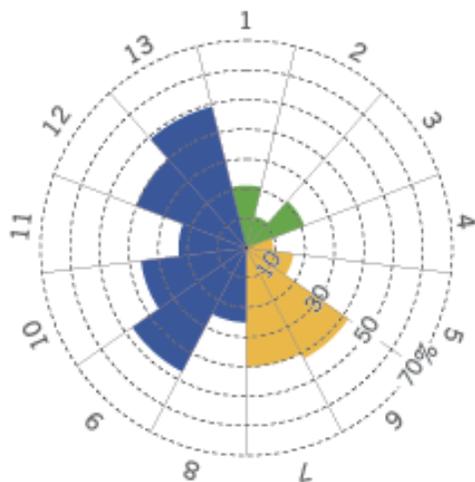
In *Nature's* survey, a subset of scholars who said they 'regularly visited' social media sites were quizzed in detail about their activities.

source: *Nature News*

Your social toolbox at a glance

TWITTER

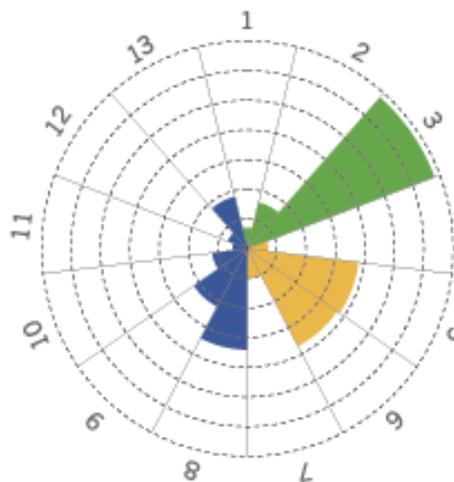
330 regular visitors



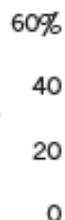
How do you use this site professionally?

LINKEDIN

389 regular visitors



Approximately how often do you visit this site in a professional capacity?



Once a day
Once a week
Once a month

How long have you had a profile on this site?



Less than 1 year
Between 1 and 2 years
Longer than 2 years

"Extremely useful in conference settings."
AGE 35-44, RESEARCH SCIENTIST, UNITED STATES

"Mainly useful for job hunting."
AGE 25-34, PHD STUDENT, UNITED STATES
"It is too much like Facebook —

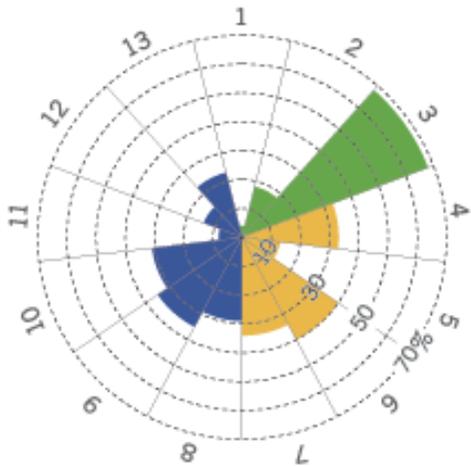
"Facebook has zero credibility in my professional life."
AGE 35-44, STAFF SCIENTIST,

source: Nature News

Your social toolbox at a glance

RESEARCHGATE

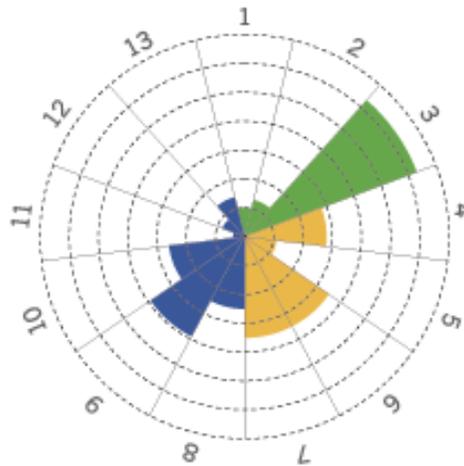
1,589 regular visitors



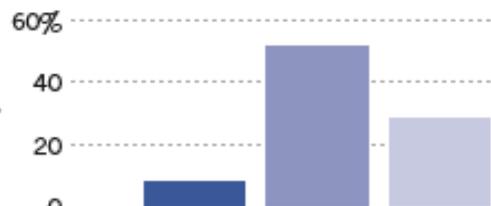
How do you use this site professionally?

ACADEMIA.EDU

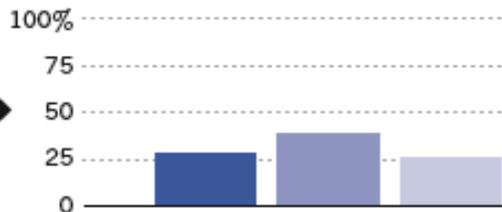
283 regular visitors



Approximately how often do you visit this site in a professional capacity?



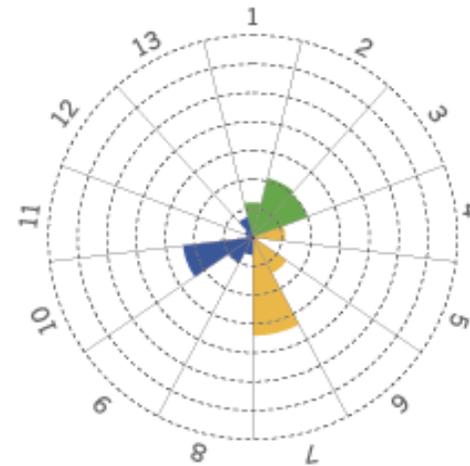
How long have you had a profile on this site?



"Mainly, a source of stress every time an e-mail pops in showing that my colleagues/ competitors are publishing more than myself."
AGE 35-44, PROFESSOR, BRAZIL

MENDELEY

198 regular visitors



"Has led to invites to referee papers/external assessments."
AGE 45-54, POSTDOCTORAL FELLOW, UNITED KINGDOM

"I have been able to post old papers which otherwise would

"Primarily still a reference manager for me. The social component is less important."
AGE 35-44, RESEARCH SCIENTIST, CANADA

"Fairly useful as a documents

Once a day
 Once a week
 Once a month

Less than 1 year
 Between 1 and 2 years
 Longer than 2 years

Trustworthy networks

ResearchGate

Already a member?

Log in ▾

For Scientists.

Access scientific knowledge, and make your research visible.

Learn more >

Join for free

Connect with Facebook

Trustworthy networks

academia.edu

Search...

Log In

Sign Up

Join a growing community of 12,855,055 researchers

Academia.edu is a place to share and follow research



Share your papers



See analytics on your profile and papers



Follow other people in your field

Sign Up to Academia.edu



Connect with Facebook



Connect with Google

or

First Name

Last Name

Trustworthy networks



MENDELEY

Sign up & Download

Sign in ▾

Get Mendeley

What is Mendeley?

Papers

Groups

Papers ▾

Search...



Features

How we help

Our users

Compare

Videos

Overview

Reference Manager

Read & Annotate

Add & Organize

Collaborate

Backup, Sync & Mobile

Network & Discover

The best free way to manage your research

Organize, share, discover

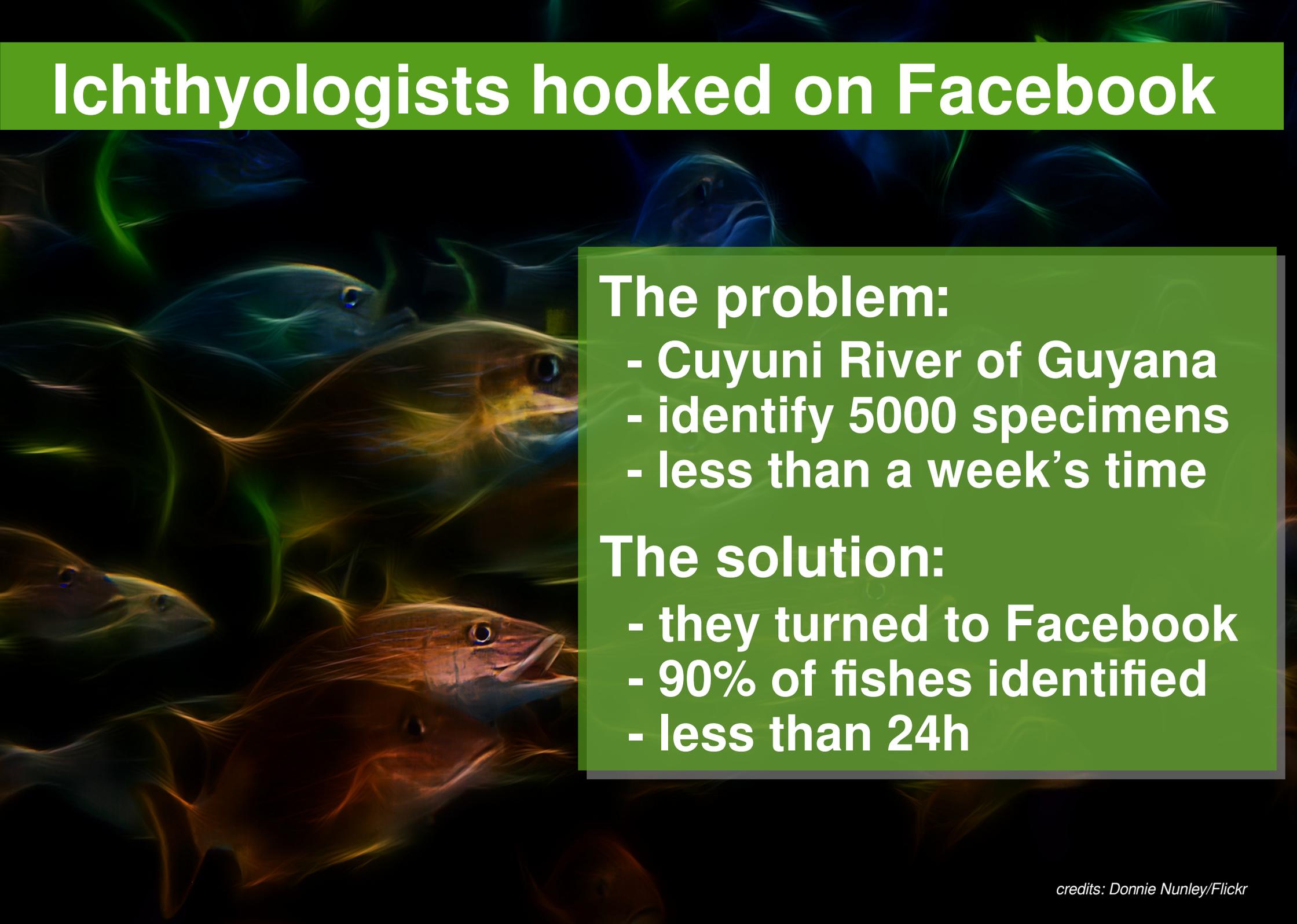
- 1 Download Mendeley for free
- 2 Add all your PDFs
- 3 Organize, cite and collaborate...

SIGN UP AND DOWNLOAD



Available for Mac, Windows and Linux

Ichthyologists hooked on Facebook



The problem:

- Cuyuni River of Guyana
- identify 5000 specimens
- less than a week's time

The solution:

- they turned to Facebook
- 90% of fishes identified
- less than 24h

The (almost) impossible quest



Tweet

1,899

Like

19k

Donate now!

Cicada Tracker

Map

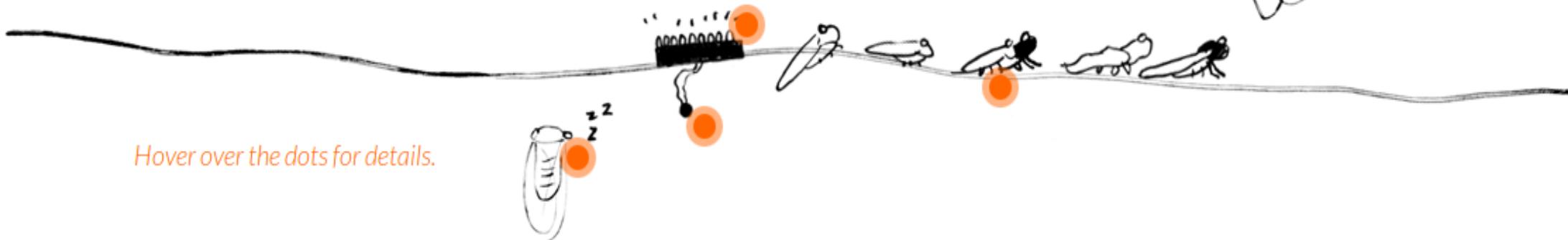
See Cicadas?

Build a Sensor

Decode Temps

Bug Blog

Patches of the East Coast are buzzing with the return of the 17-year cicadas. They're carpeting spots from GA to CT, and filling the air with a 7 kHz mating buzz. Alert scientists when you see them emerge – or help predict their arrival with a home-built sensor!

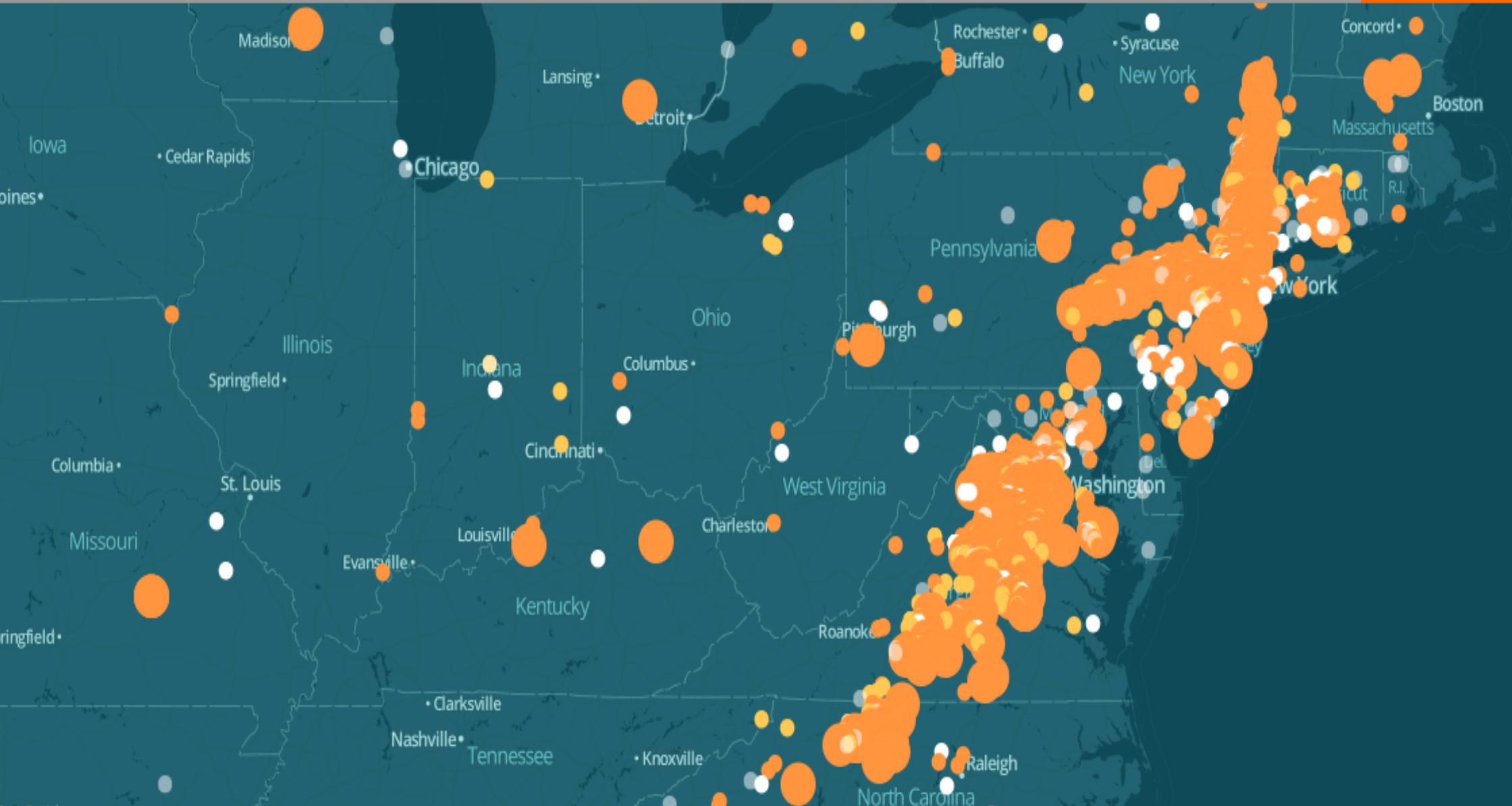


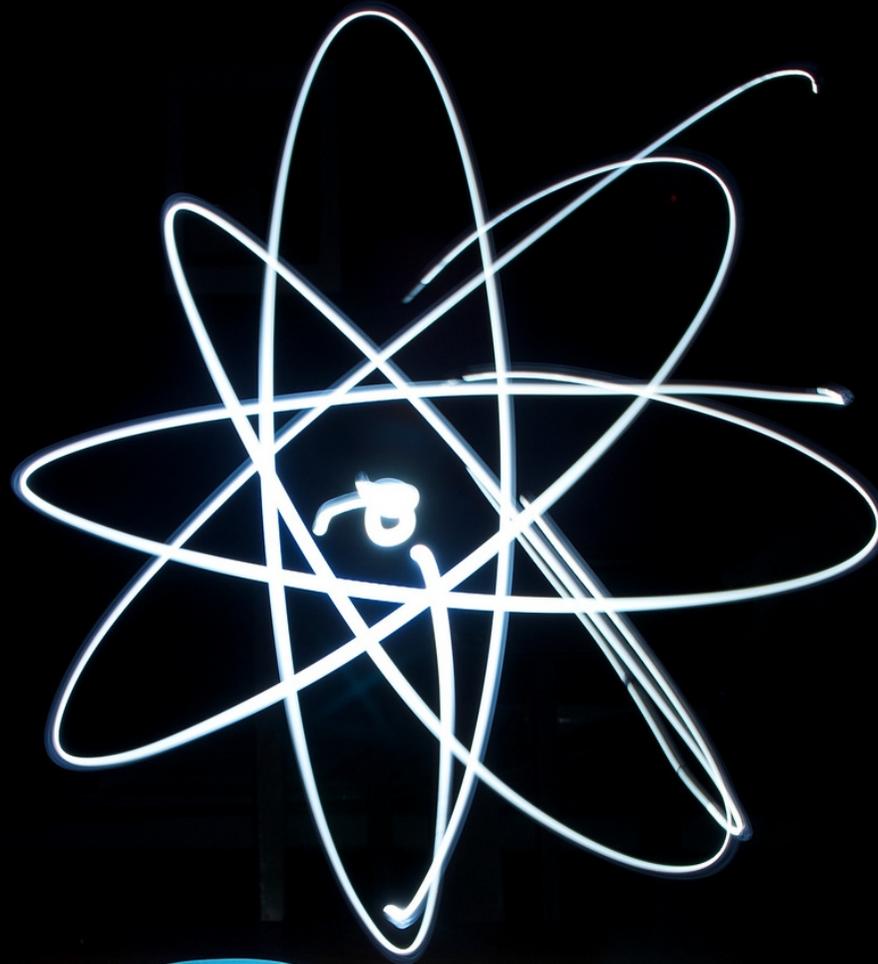
Hover over the dots for details.

Mapping swarmageddon

Seen: ● Nymphs ● New adults ● Adults ● 100+ adults

Switch to temp r





Social media in the lab

The virtual particles smasher

LHC@home

Portal

Test4Theory

Simulations

Why so important?

Quick Links

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vLHCathome BOINC home

BOINC Forum

Media

Code of Conduct

Home

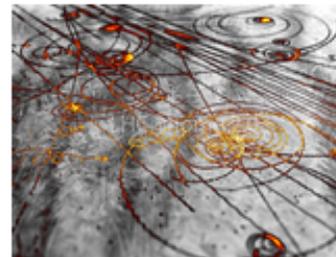
Virtual LHC@home

Always wanted a virtual atom smasher?

The [Virtual LHC@home project](#) (formerly known as Test4Theory) allows users to participate in [running simulations of high-energy particle physics](#) using their home computers.

The results are submitted to a [database](#) which is used as a common resource by both experimental and theoretical scientists working on the [Large Hadron Collider](#) at CERN.

Lots of volunteers around the world are connected to this project running vLHCathome simulations right now. [See where they are](#) (map coordinates are randomized at city level for privacy; undetermined locations are shown in the Bermuda triangle). Or check the current list of top contributors at the [vLHCathome Leaderboard](#).



Search



Recent Content

- [The virtual collider programs we run](#)
Updated date: 07/31/2014 - 13:25
- [High Energy Physics simulations](#)
Updated date: 07/30/2014 - 11:44
- [Always wanted a virtual atom smasher?](#)
Updated date: 07/30/2014 - 11:41
- [Why is volunteer help so important?](#)
Updated date: 07/30/2014 - 10:13
- [vLHCathome \(formerly Test4Theory\) Timeline](#)
Updated date: 07/15/2014 - 15:28

A puzzle for science

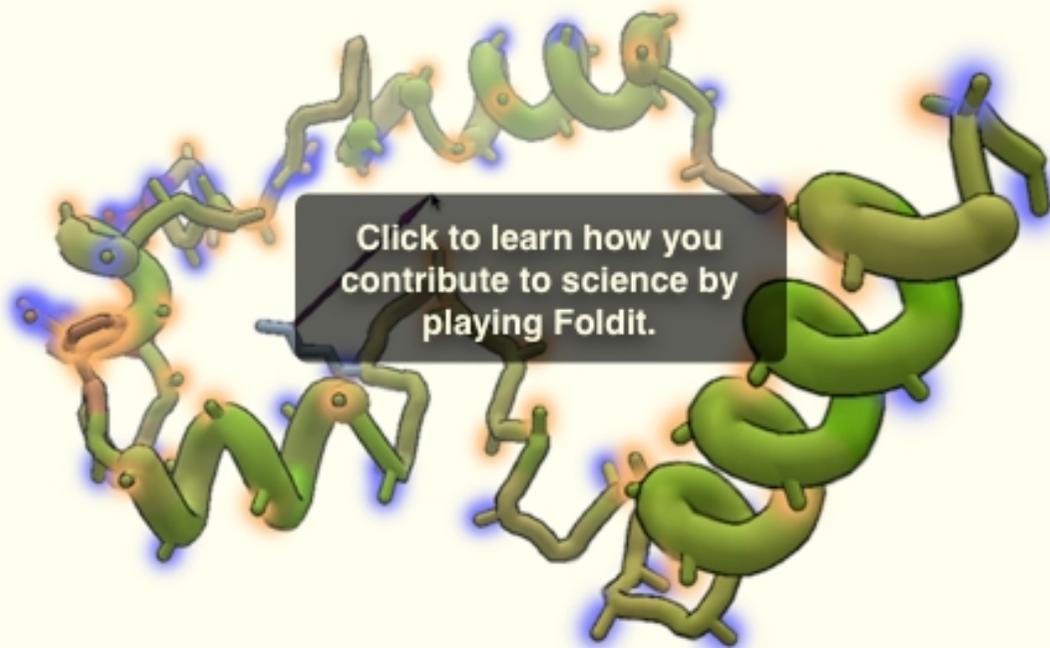


foldit BETA

11:12:03 GMT

Solve Puzzles
for Science

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GET STARTED: DOWNLOAD



Win Beta

Windows
(XP/Vista/7)



Mac Beta

OSX
(Intel 10.5 or later)



Linux Beta

Linux
(64-bit)

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[Are you an educator? Click here.](#)

SEARCH

Google Search

Only search fold.it

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Send

USER LOGIN

Username: *



NANOCRAFTER

Try our new scientific discovery game!

Be creative and build extraordinary tiny machines!

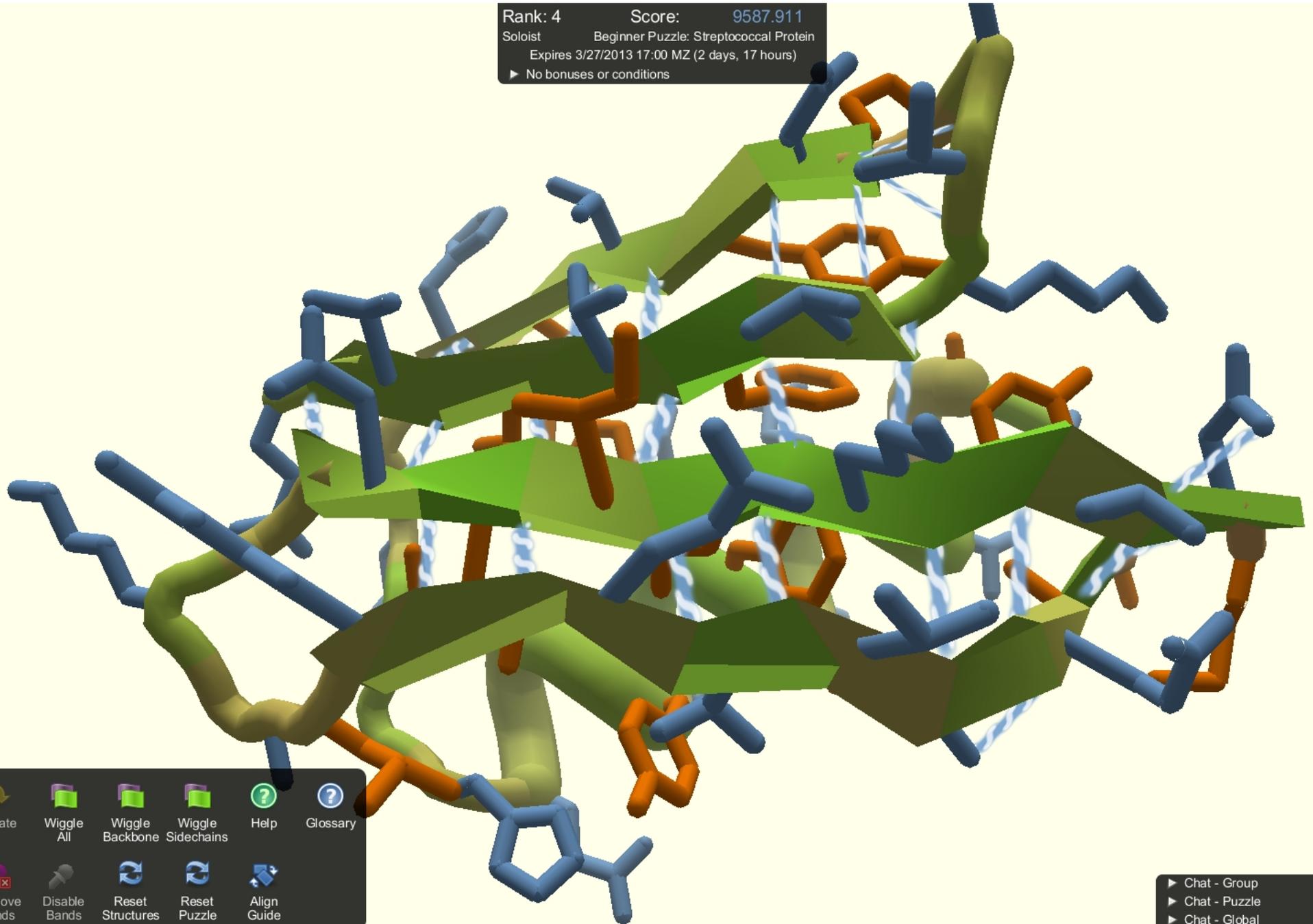
What's New



It is definitely a game

Pull Mode

Rank: 4 Score: 9587.911
Soloist Beginner Puzzle: Streptococcal Protein
Expires 3/27/2013 17:00 MZ (2 days, 17 hours)
▶ No bonuses or conditions



0000000000

Shake Mutate Wiggle All Wiggle Backbone Wiggle Sidechains Help Glossary

Freeze Protein Remove Bands Disable Bands Reset Structures Reset Puzzle Align Guide

▶ Chat - Group ✖ auto show
▶ Chat - Puzzle ✖ auto show
▶ Chat - Global ✖ auto show

Sharing resources

QUARTZY

OVERVIEW

ORDER REQUESTS

INVENTORY

DOCUMENTS

EQUIPMENT SIGN-UP

SIGN UP

The screenshot displays the QUARTZY web application interface. At the top, there is a navigation bar with the QUARTZY logo and menu items: OVERVIEW, ORDER REQUESTS (highlighted), INVENTORY, DOCUMENTS, and EQUIPMENT SIGN-UP. A 'SIGN UP' button is located in the top right corner. The main content area shows the 'ORDER REQUESTS' section, which includes a search bar, filters, and a table of requests. The table has columns for Item Information, Details, Price, History, and Actions. Two requests are visible: one for Diethylenetriaminepentaacetic dianhydride,98% and another for Sodium Phosphate, Monobasic, Monohydrate, Molecular Biology Grade. The interface also features a sidebar with 'Groups' and 'Products' sections.

GOOD MORNING, FRED! NOTIFICATIONS (1) ACCOUNT MESSAGES SUPPORT LOGOUT

QUARTZY Invite

DASHBOARD INVENTORY ORDER REQUESTS DOCUMENTS FACILITIES GROUPS

Groups

All Groups (14)

Charles Darwin Lab (14)

Marie Curie Lab (0)

Shared Equipment (0)

Thomas Morgan Lab (0)

Products

Vendor Catalogs

Settings

Default View

Spend Report

Search Order Requests Status From To Filters

Order Requests + Add Request Update Status More

Item Information	Details	Price	History	Actions
<input type="checkbox"/> Diethylenetriaminepentaacetic dianhydride,98%	Vendor: Sigma-Aldrich Catalog #: 284025-1G : 1g Type: Chemical	From: Fred Hill Grant ID: [dropdown] Req #: [dropdown] PO #: [dropdown] Conf #: [dropdown] Invoice #: [dropdown] Tracking #: [dropdown]	Unit Size: 1g Unit Price: 50.00 Quantity: 6 Total: 300.00	Submitted: 4/29/14 APPROVE REQUEST CANCEL
<input type="checkbox"/> Sodium Phosphate, Monobasic, Monohydrate, Molecular Biology Grade	Vendor: EMD Millipore Catalog #: 567549-9KG	From: Fred Hill Grant ID: [dropdown]	Unit Size: 1 KG Unit Price: 139.00 Submitted: 4/28/14 Approved: 4/30/14	MARK AS ORDERED



Science's out there, too

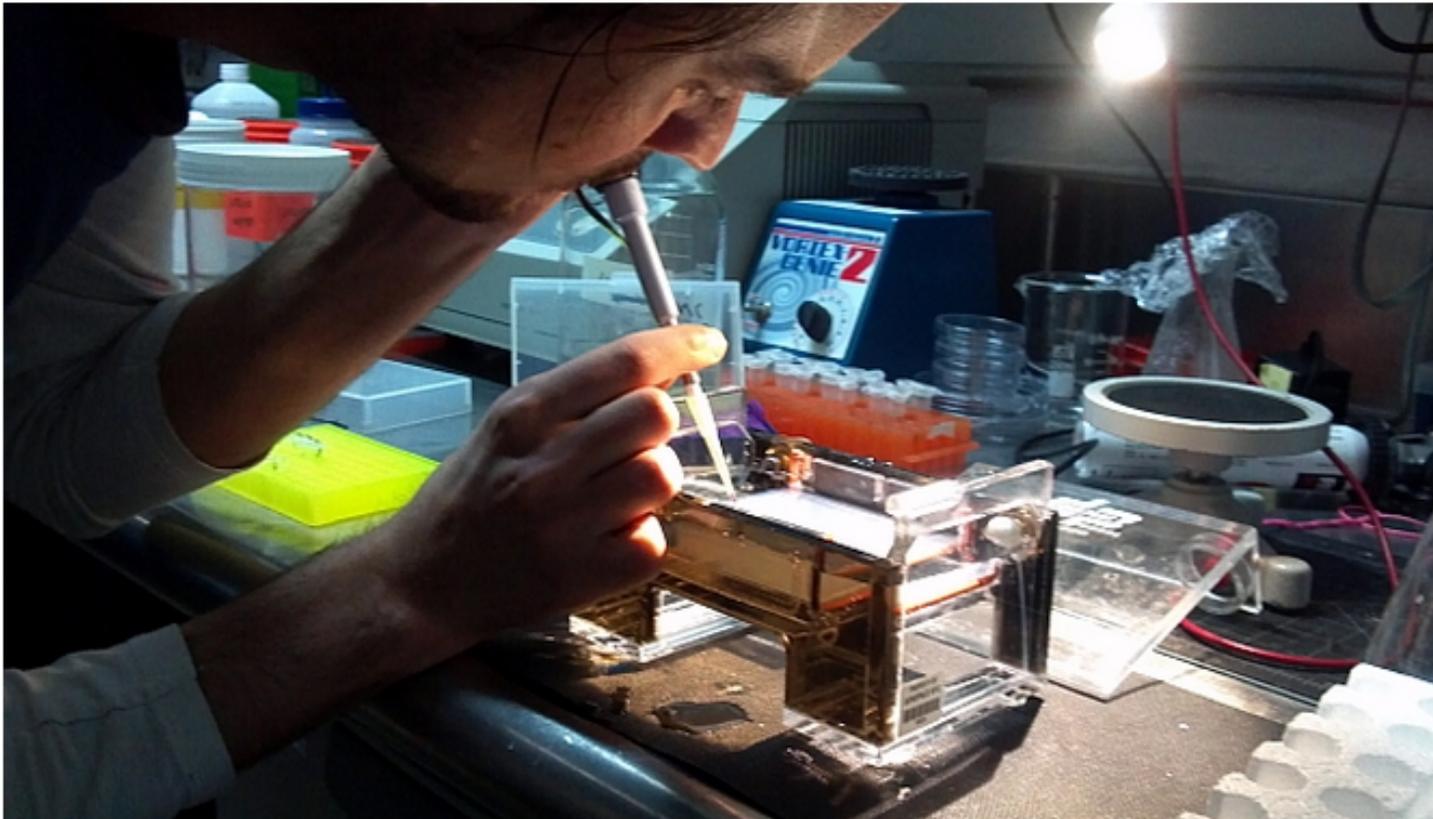
GENSPACE

New York City's Community Biolab

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Biohacker Boot Camp

Join us for this intense week of biohacking! Reprogram bacteria to glow and fluoresce, hack your own genome and learn to DIY lab equipment.

[More Info](#)

1 2 3 4 5 6

Genspace in the News

#GenspaceHackathon: Making Fun, Fun, Fun

Remember when science was fun?

Flickr Photos

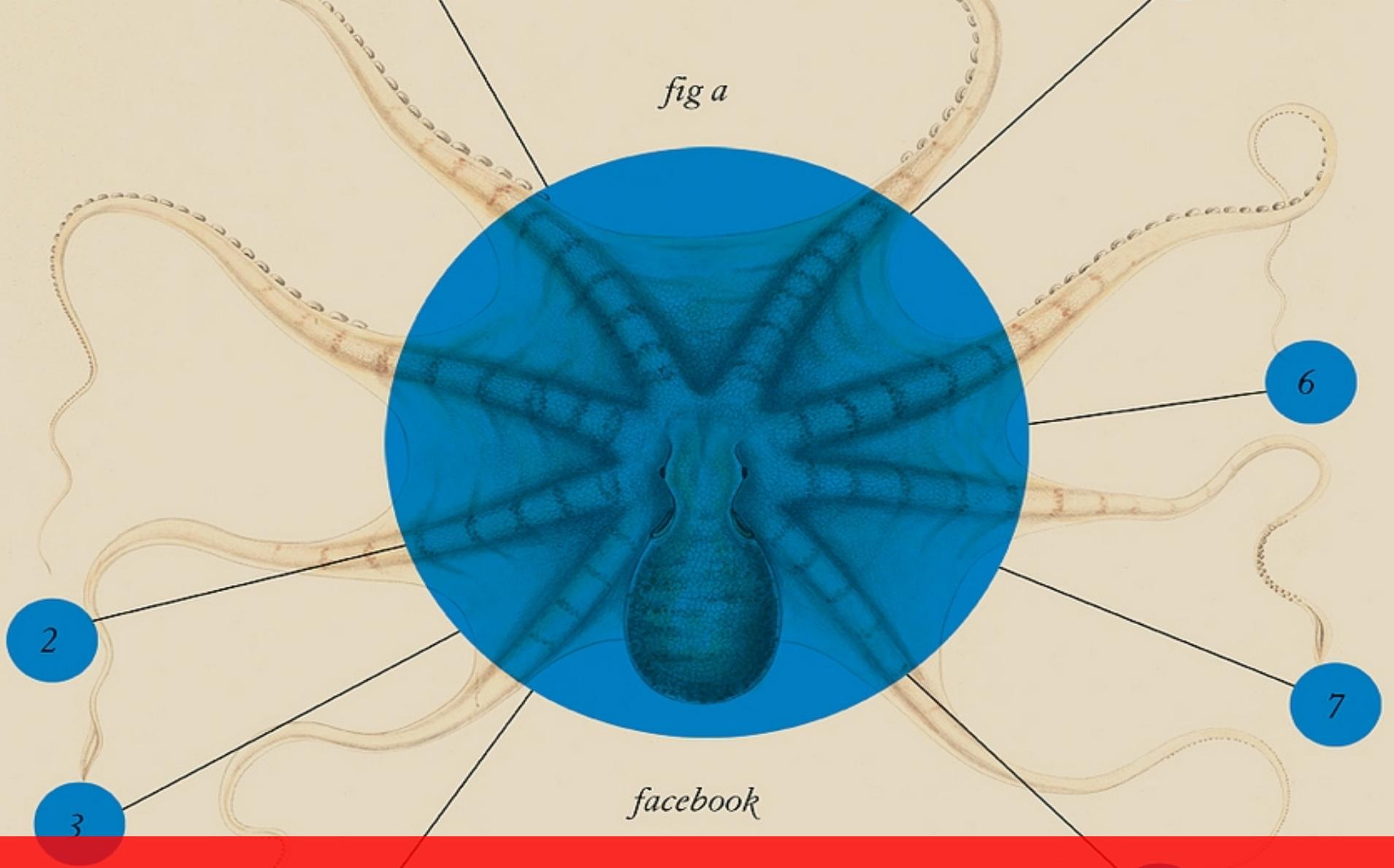


Science is out there, too



“By providing outreach in the form of courses and workshops for nonscientists in subjects such as biotechnology, we make the latest medical advances more accessible, understandable and less threatening. It’s harder to fear something one has actually done side by side with one’s high-school-age son or daughter.”

- Ellen Jorgensen

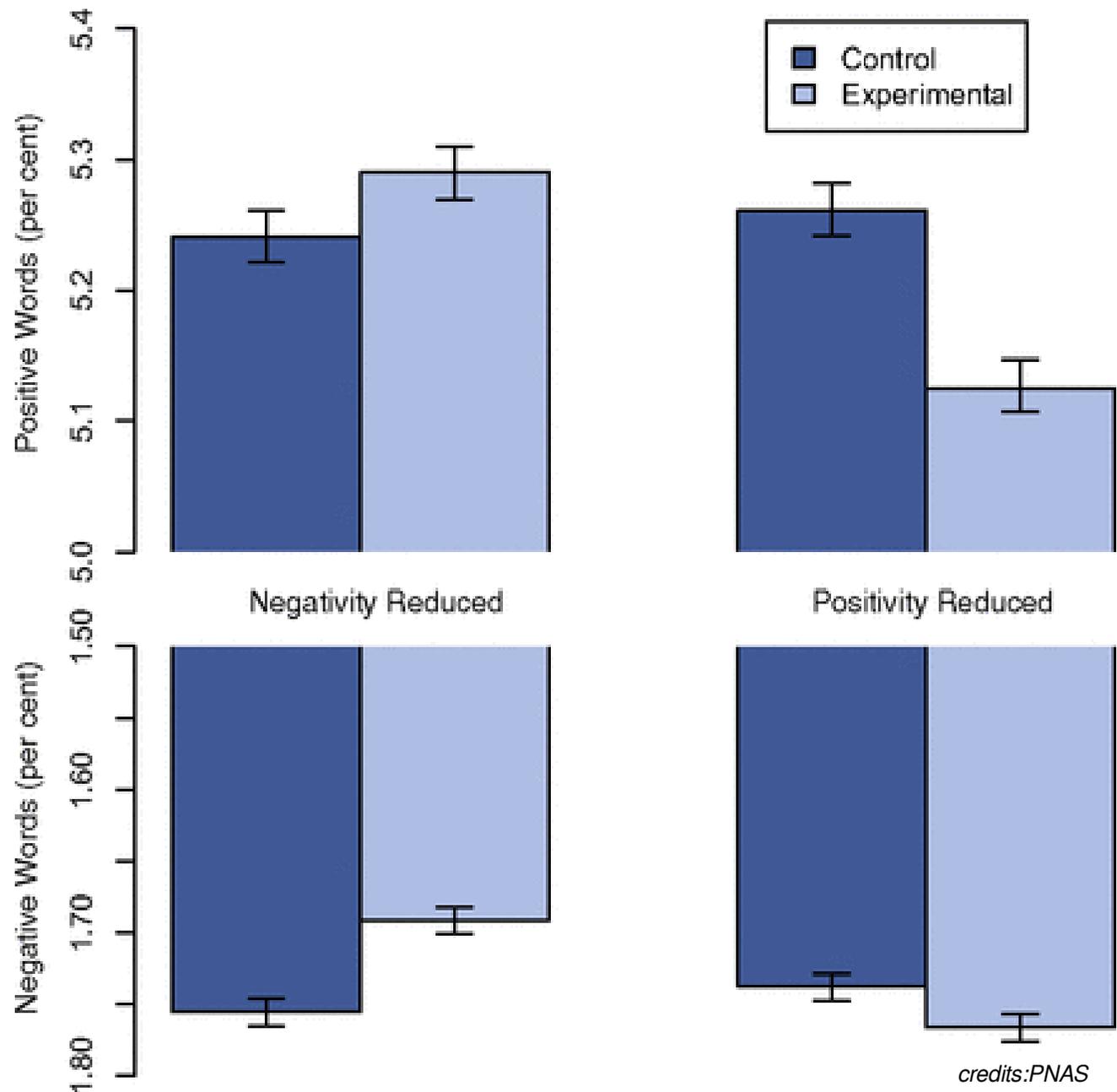


Social experiments

Facebook's experiment - PNAS

Experimental evidence of massive-scale emotional contagion through social networks

*Around 700k users
1 week of testing on
3 million posts with
122 million words:
4 million positive
1.8 million negative*



Was Facebook unethical?

“Although approval by an institutional review board was not legally required for this study, it would have been better for everyone involved had the researchers sought ethics review and debriefed participants afterwards.”

- Michelle Meyer

What do you mean with 'ethical'?

“Ethics aren’t a checklist. Nor are they a universal. [...] We need ethics to not just be tacked on, but to be an integral part of how everyone thinks about what they study, build, and do.”

-Dana Boyd



Let's talk about you

Please, as a scientist, share a positive/negative experience on a social network.



Social media for scientists

Try to take it seriously

SMS

PARTICIPANTS

87

2% of all communication participants

TOP PARTICIPANTS

Olga Bell	40,662
Joshua Gorchov	458
Ryan Case	368
Twitter	348
Michael L. Orenstein	292
Matthew Grzywinski	222

MOST SMS

February 17

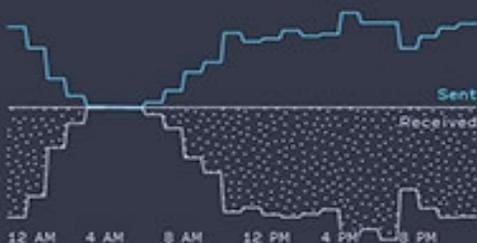
586 messages

DAYS W/O SMS

7

2% of year

HOURLY SMS



SENT SMS

18,131

Average 59/day

RECEIVED SMS

25,895

Average 71/day

TOTAL MONTHLY SMS

x1,000



SENDERS

84

97% of participants

RECIPIENTS

59

68% of participants

Email

PARTICIPANTS

3,744

66% of all communication participants

TOP PARTICIPANTS

Authorize.net	1,899
Big Cartel	1,185
Nicholas Felton	916
Olga Bell	735
Trulia	661
Flickr	481

MOST EMAIL

March 13

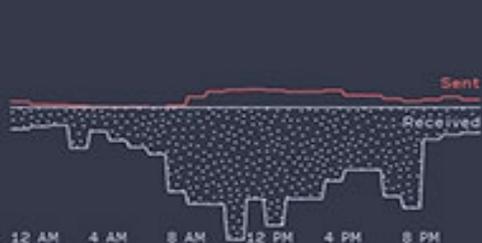
1,074 emails

LEAST EMAIL

August 4

23 emails

HOURLY EMAIL



SENT EMAIL

3,852

Average 11/day

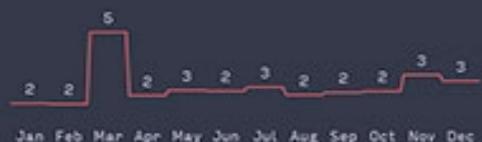
RECEIVED EMAIL

27,917

Average 76/day

TOTAL MONTHLY EMAIL

x1,000



SENDERS

3,657

98% of participants

RECIPIENTS

950

25% of participants

Facebook Messages

PARTICIPANTS

336

6% of all communication participants

TOP PARTICIPANTS

Justin Shaffer	289
Cooper Liska-Smith	279
Edan Rosenberg	225
Roddy Lindsay	212
Joey Flynn	147
Ryan Case	137

MOST MESSAGES

November 7

225 messages

DAYS W/O MESSAGE

92

25% of year

HOURLY FACEBOOK MESSAGES



SENT MESSAGES

2,057

Average 6/day

RECEIVED MESSAGES

2,454

Average 7/day

TOTAL MONTHLY FACEBOOK MESSAGES

x100



SENDERS

326

97% of participants

RECIPIENTS

190

57% of participants

Mail

PARTICIPANTS

1,397

25% of all communication participants

TOP PARTICIPANTS

New Yorker	48
Merrill Edge	25
Merrill Lynch	17
Facebook	14
Wired	13
Con Edison	12

MOST MAIL

June

732 pieces of mail

LEAST MAIL

April

24 pieces of mail

MONTHLY MAIL



SENT MAIL

1,192

Average 3/day

RECEIVED MAIL

527

Average 1/day

DAILY MAIL



SENDERS

218

16% of participants

RECIPIENTS

1,188

85% of participants

Every single word matters

**SCIENCE KILLS
CENTER
HIGH SCHOOL**

Research ripped apart



TRIAL BY TWITTER

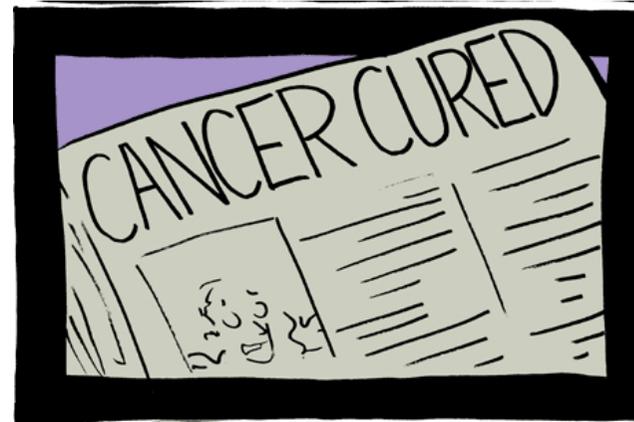
Blogs and tweets are ripping papers apart within days of publication, leaving researchers unsure how to react.

BY APOORVA MANDAVILLI

source: Nature News

Misunderstandings

HOW SCIENCE REPORTING WORKS:



Try to avoid Ivory Towers

“The scientist has in common with the artist only this: that he can find no better retreat from the world than his work and also no stronger link with the world than his work.”

-Max Delbrück



WE ARE SCIENTISTS
KOKO - LONDON
26 MAY 08

Conclusions

Ask yourself how social networks can help you

Test different social networks and find the best

Define what you should share/keep private

Ask your institution for common guidelines

Your social presence is not a source of stress



**Thank
You
For
Being
Here**

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What does the Facebook experiment teach us? – Boyd D / *Medium* (July 2, 2014)

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Links

Nature first issue: <http://www.nature.com/nature/about/first/index.html>

Altmetric: <http://www.altmetric.com>

Research Gate: <http://www.researchgate.net>

Academia: <http://www.academia.edu>

Mendeley: <http://www.mendeley.com>

Ichthyologists on Facebook: <http://youtu.be/8hhXZwLFfao>

LHC at Home: <http://lhcathe.web.cern.ch/test4theory>

Foldit: <http://fold.it/portal>

Quartzy: <http://www.quartzy.com>

GENSPACE: <http://genspace.org>

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Saturday Morning Breakfast Cereal: <http://www.smbc-comics.com/?id=1623>

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