SXSW 2014

CHANGE THE WORLD: SUPER POWERED SCIENCE ON THE WEB

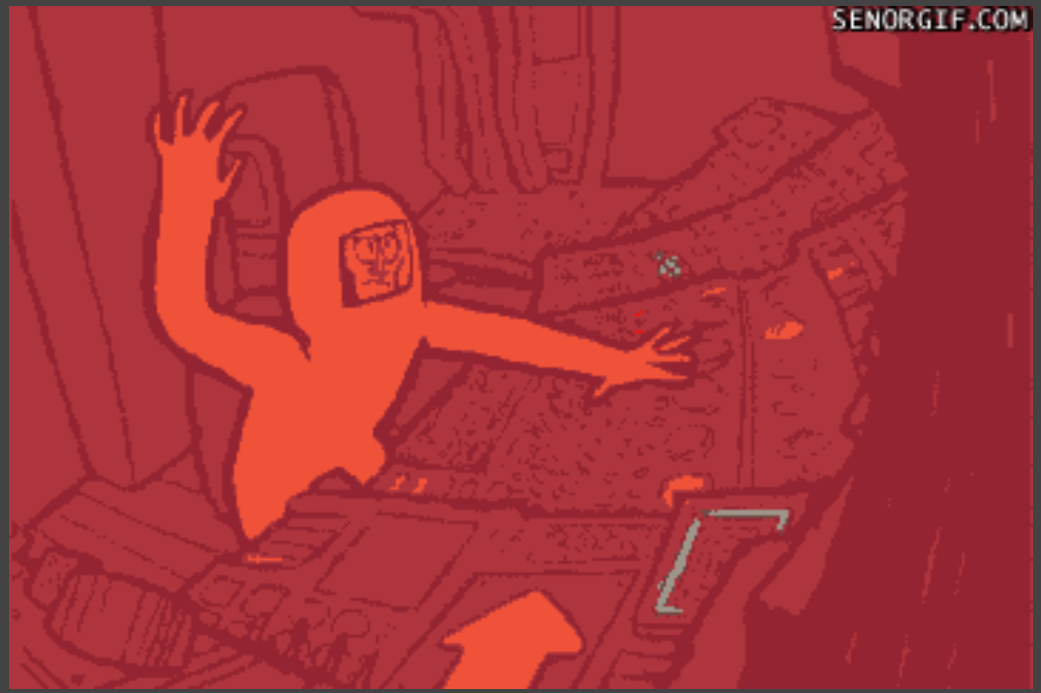
#webscience

“The Computer is incredibly fast, accurate and stupid. Man is unbelievably slow, inaccurate and brilliant. The marriage of the two is a challenge and an opportunity beyond imagination. “

– Walesh, 1989

Why are we here?

Reduce Technical Difficulties



Why are we here?

More Effective & Productive Scientist

Why are we here?

Bring more people into science

#webscience

Your Panel….

Maytal Dahan , Texas Advanced Computing Center
Nancy Wilkins-Diehr, San Diego Supercomputer Center
Arfon Smith, GitHub
Mark Hahnel, Figshare

Maytal Dahan

Powering Discoveries That Change The World

Web & Mobile Applications Group

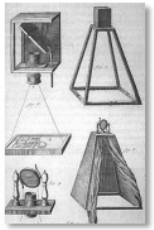
Creating Interfaces, APIs, Services

Goal: Easy of Use, sustainability, scalability

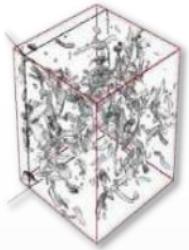
SDSC
SAN DIEGO SUPERCOMPUTER CENTER

Nancy Wilkins-Diehr

The world is realizing that the nature of research has changed



$$\left(\frac{\dot{a}}{a}\right)^2 = \frac{4\pi G\rho}{3} - K\frac{c^2}{a^2}$$



1,000 years ago	Last 500 years	Last 50 years	Today
• Experimental – Description of natural phenomena – Experimental methods and quantification	• Theoretical – Formulation of Newton's laws, Maxwell's equations, …	• Computational – Simulation of complex phenomena	• Data – Distributed communities unifying theory, experiment, and simulation with massive data sets from multiple sources and disciplines

OAK RIDGE NATIONAL LABORATORY
MANAGED BY UT-BATTELLE FOR THE U.S. DEPARTMENT OF ENERGY

Source: Jeff Nichols, ORNL

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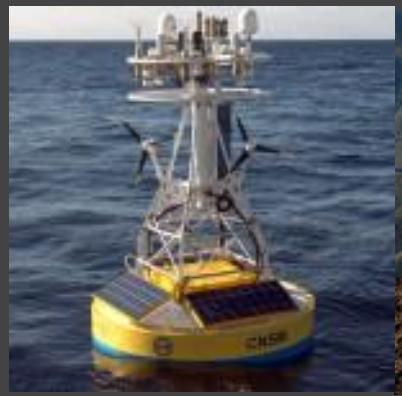
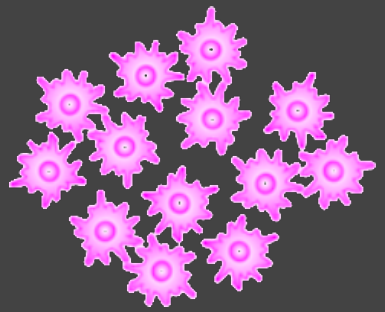
Computation is everywhere in science

1980s: computing in a vacuum

Today: datasets + sensors + instruments + supercomputers + people



Mark Hahnel



figshare

#OpenResearch

All publicly funded research should be made available for interrogation in a human and machine readable format.

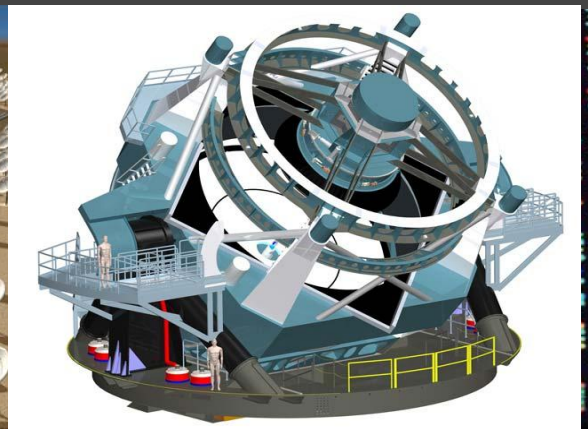

OPEN ALL
THE RESEARCH

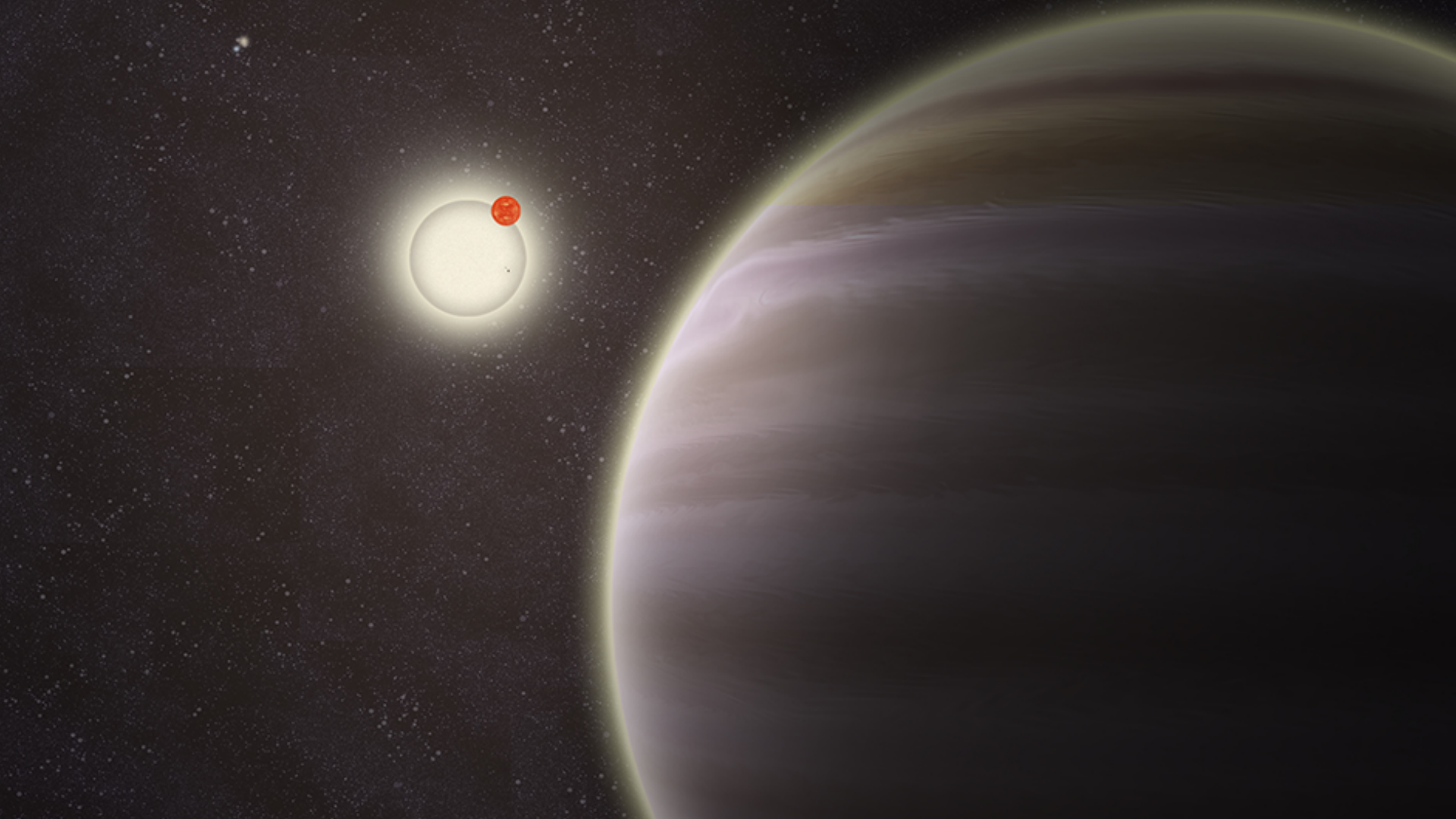
Arfon Smith

GitHub

open source

ZOONIVERSE





Who are you?

How are scientist using the web?

iPlant Collaborative

figshare
credit for all your research

GitHub

CIPRES

nanoHUB.org

GALAXY ZOO

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How can we engage more science?

Why aren't more projects using web technologies?
What challenges & technical difficulties exist?

What successful community building experiences do you have?

What can we learn from the audience, how can your experience help science?
Are their communities we are failing to reach?
How do we make more impact?

How do we get more people involved in science?

You don’t have a PhD in astrophysics to be involved.
How do we attract developers? How do we KEEP them in science?

How can you get involved?

Thank you for coming!

Additional thanks to our contributors:

Matthew Hanlon, Jay Boisseau, Stephen Mock, Kaitlin Thaney

Questions?

Maytal Dahan @maytaldahan

Nancy Wilkins-Diehr @SDSC_UCSD

Arfon Smith @arfon

Mark Hahnel @MarkHahnel

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