Envisioning the Scientific Paper of the Future

Vol I.
For Anno 1665, and 1666.

In the SAVOT,
Printed by T. N. for John Martyn at the Bell, a little without Temple-Bar, and James Allestry in Duck-Lane; Printers to the Royal Society.

Caltech Library  January 9 2017
Envisioning the Scientific Paper of the Future

PROGRAM

9:30- 10:00 am
Check in & Registration Avery Courtyard

10:00- 11:45 am
Envisioning the Scientific Paper of the Future: a panel discussion Avery Hall
Dr. Victoria Stodden, Associate Professor of Statistics, School of Information Sciences, University of Illinois.
Dr. Titus Brown, Associate Professor of Population Health and Reproduction, UC Davis Genome Center.
Dr. Yolanda Gil, Research Professor of Computer Science, University of Southern California.
Welcome from University Librarian Kristin Antelman
Moderator: Richard C. Flagan, Irma and Ross McCollum-William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering, Caltech.

11:45–noon
Break; Pick up box lunches Avery Hall Foyer
(veg and gluten free boxes reserved for those who registered with special requests)

12:00 – 1:00 pm
Lunch with Speaker Avery Hall
The Impact of Open Data Sharing: Perspectives from the LIGO Open Science Center.
Dr. Alan Weinstein, Professor of Physics, Caltech.

1:00- 1:15 pm
Break; Head to discussion break outs. Avery Hall

1:15— 2:00 pm
Open Discussions: What Does the Caltech Community Want in the Scientific Paper of the Future?
Participants will discuss their visions for a more open, transparent and reusable scientific communication. Discussions will start in two self-organized breakouts: experimentalists and theoreticians/modelers. Our conversations will be led by the morning speakers. Research librarians will serve as scribes to capture discussions.
Group 1: Experimentalists (Avery Hall)
Group 2: Theoreticians/modelers (Avery Library)

2:15 - 3:00 pm
Break Avery Foyer
Wrap up and Next Steps Avery Hall
Perspectives from the day will be shared with the Faculty Library Committee and will be used by the Caltech Library to inform its future planning to support 21st century publishing.

HELPFUL TIPS FOR ATTENDEES:
Guest Wifi Network: Username: SPOF Password: futurescience
Tweeting from this event? Use #FuturePaper @CaltechLibrary

Need other help today? Please feel free to stop by the check-in table in Avery Courtyard where friendly Caltech Library Staff will be on hand to answer questions or provide directions
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SPEAKER BIOS

Dr. C. Titus Brown
http://ivory.idyll.org/lab/ | @ctitusbrown.

Dr. Brown is Associate Professor of Population Health and Reproduction, UC Davis Genome Center and Director of the Lab for Data Intensive Biology at UC Davis. His research group practices open science as they work on questions around biological data analysis, data integration, and data sharing.

Dr. Brown is an alumnus of Caltech and has led Data and Software Carpentry training for campus researchers and library professionals.

Dr. Richard C. Flanagan
http://www.che.caltech.edu/faculty/flagan_r/

Dr. Flanagan is Irma and Ross McCollum-William H. Corcoran Professor of Chemical Engineering and Environmental Science and Engineering, Caltech. His research group advances our understanding of the atmospheric aerosol, at scales ranging from the very localized effects of near roadway exposures, to that of the urban, regional, and global atmosphere.

Dr. Flanagan chairs the Caltech Faculty Board and convened the 1997 Caltech Conference on Scholarly Communication that considered how the research community would apply the capabilities of the Internet to research publications, if the print journal model did not exist.

Dr. Yolanda Gil
http://www.isi.edu/~gil/ | @yolandagil

Dr. Gil is Research Professor of Computer Science, USC, where she serves as PI of the Interactive Knowledge Capture research group and Associate Division Director for Research of the Intelligent Systems Division at USC’s Information Sciences Institute. Dr. Gil is co-chair of the Geoscience Papers of the Future Initiative, an NSF-funded EarthCube OntoSoft project, which provides training to scientists on best practices of reproducible papers, open science, and digital scholarship.

Dr. Victoria Stodden
https://ischool.illinois.edu/people/faculty/vcs | @victoriastodden

Dr. Stodden is Associate Professor of Statistics, School of Information Sciences, University of Illinois. She co-chairs the NSF Advisory Committee for CyberInfrastructure and is a member of the NSF Directorate for Computer and Information Science and Engineering (CISE) Advisory Committee. She is co-PI on the NSF Whole Tale project to support reproducible science through technologies and interfaces that support linking research publications to associated data and communicating the research inquiry process.

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http://pma.caltech.edu/content/alan-j-weinstein | @LIGO

Dr. Weinstein is Professor of Physics at Caltech and leads the gravitational wave astrophysical data analysis group at the LIGO Laboratory. He had been involved with LIGO since 1998.
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## RELATED RESOURCES & INITIATIVES

**The Scientific Paper of the Future Initiative**
http://scientificpaperofthefuture.org/
This NSF-funded EarthCube initiative encourages geoscientists to publish papers together with the associated digital products of their research. This means that a paper would include: 1) Documentation of datasets, including descriptions, unique identifiers, and availability in public repositories; 2) Documentation of software, including pre-processing of data and visualization steps, described with metadata and with unique identifiers and pointers to public code repositories; 3) Documentation of the provenance and workflow for each figure or result.

**Whole Tale**
http://whole.tale.org/
Whole Tale, an NSF-funded initiative at the National Center for Supercomputing Applications (NCSA), will enable researchers to examine, transform, and then seamlessly republish research data, creating ‘living articles’ that will enable new discovery by allowing researchers to construct representations and syntheses of data.

**Research Objects**
http://www.researchobject.org/
A community of scientists and publishers aimed at gathering together information, ideas, and interest to map the landscape of initiatives and activity in the development of Research Objects, an emerging approach to the publication, and exchange of scholarly information on the Web.

**Nanopublication**
http://nanopub.org/wordpress/
Initiative from the Netherlands Bioinformatics Center to promote and provide support for nanopublication, the smallest unit of publishable information: an assertion about anything that can be uniquely identified and attributed to its author.

**Code as a Research Object**
https://mozillascience.github.io/code-research-object/
An initiative of Mozilla Science Lab, GitHub, and FigShare to archive a GitHub code repository to figshare and receive a citable DOI.

**The Jupyter Notebook**
http://jupyter.org/
The Jupyter Notebook is a web application that allows you to create and share documents that contain live code, equations, visualizations and explanatory text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, machine learning and much more.

**Manifold**
http://manifold.umn.edu/
Manifold is an intuitive, open source, collaborative platform for scholarly publishing. With iterative texts, powerful annotation tools, rich media support, and robust community dialogue, Manifold transforms scholarly publications into living digital works.

**Selected readings of interest**


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ABOUT THE CALTECH LIBRARY

The Caltech Library, founded in 1891, is a leading science and engineering research library that serves the knowledge management needs of the California Institute of Technology community and affiliated researchers. Caltech Library has a long record of innovation as an early adopter of new approaches to knowledge management, from one of the earliest electronic theses programs to a model Faculty open access policy. The Library collaborates with other campus divisions and units to host a wide range of training in open research, data and software management, authoring, and publishing.

Caltech Library supports an extensive research collection of journals, monographs, and reference databases; analytical software for data collection, analysis, and visualization; collaborative scientific authoring platforms supporting Open Science; robust open access and open data repositories built on state of the art technologies such as the Invenio Digital Library platform developed at CERN. The Library’s TechLab provides members of the Caltech community unfettered hands-on access to innovative technologies for prototyping and modeling: 3D printing and scanning to circuit board manipulations and more!

The Caltech Archives captures the rich history of Caltech and its research legacy, from the papers of Richter, to the sketches of Feynman and the notebooks of Millikan. Many of these materials are available online for consultation worldwide.

You are welcome to visit the Caltech Library both in person or online! More information about our services and resources is available on the Web at library.caltech.edu | by writing to library@caltech.edu | by following our twitter feed @CaltechLibrary | liking our Facebook page, https://www.facebook.com/CaltechLibrary/
ABOUT THE CALTECH LIBRARY

The Caltech Library, founded in 1891, is a leading science and engineering research library that serves the knowledge management needs of the California Institute of Technology community and affiliated researchers. Caltech Library has a long record of innovation as an early adopter of new approaches to knowledge management, from one of the earliest electronic theses programs to a model Faculty open access policy. The Library collaborates with other campus divisions and units to host a wide range of training in open research, data and software management, authoring, and publishing.

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