

Citizen Science Workshop

Opportunities & Challenges of Citizen Science

January 22-23, 2015, ETH Zentrum, Zurich, Switzerland

Organisers

Ernst Hafen, Institute of Molecular Systems Biology, ETH Zurich

Mike Martin, University Research Priority Program "Dynamics of healthy Aging", UZH

Kevin Schawinski, Institute for Astronomy, ETH Zürich

Effy Vayena, Institute for Biomedical Ethics, UZH

Sponsors

ETH Zurich, [Critical Thinking Initiative](#)

University of Zurich, [PhD Program in Biomedical Ethics and Law](#) and URPP [Dynamics of Healthy Aging](#)

Association Data and Health, Schweizerische Akademie für Technische Wissenschaften (SATW)

Abstract

Up until the end of the 19th century, significant scientific discoveries were made by financially independent citizens (e.g., Charles Darwin). During the 20th century scientific research became the realm of universities and other large institutions. As a consequence, citizens developed an increasingly critical attitude towards science and its application (e.g., GMO, evolution, vaccination). Owing to new global communication and social interaction tools and the rapidly increasing digital transformation of data, knowledge is becoming easily accessible and citizen participation is again increasingly possible. Wikipedia as a crowd-sourced encyclopedia has outpaced classical knowledge compendia in a single decade. As a new form of science, direct participation of citizens in scientific projects is starting to appear. In the "Foldit" on-line computer game, citizens with no formal training in protein structure and biochemistry help to analyze the structure of proteins. Similarly, in "Zooniverse.org" millions of citizens classify galaxies, extract oceanic meteorological data from logbooks of ancient ships, or classify tumor samples. These are the very first manifestations of a revolution in scientific research that invites public participation or may even be initiated by the public. Citizen science, thus, offers a huge potential in engaging citizens in scientific research. Not only will this be important for the common good, it will also increase the public's scientific literacy, which has generally been neglected owing to the retraction of science behind the walls of academia. Opportunities will further increase by citizen researchers contributing and analyzing their own personal health data. The vision of more participatory sciences looks bright and may in fact counteract to some degree the impending threat of the elimination of highly qualified jobs by ever faster and smarter computers and robots. However, citizen science also raises questions on the ethical conduct of such projects and it challenges established academic institutions, funding agencies and scientific publishers. What should be the oversight mechanism for citizen-initiated health research, how can scientists work with citizen-scientists without exploiting them and how should funding agencies determine the potential of citizen science projects?

This workshop aims at providing an overview of the present state of citizen science, an outlook into the potential of citizen science in the future and the discussion of the opportunities and challenges associated with the re-emergence of this discipline for scientists, policy makers and funders.

Confirmed Speakers and Discussants

Donat Agosti (Plazi), Avi Bernstein (UZH), Steven Boker (Univ. Virginia), Christa Dürscheid (UZH), Stefanie Eicher (UZH), Lucy Fortson (Zooniverse/Univ. Minnesota), André Golliez (itopia), Bastian Greshake (OpenSNP), Ernst Hafen (ETH Zürich), Dirk Helbing (ETH Zürich), Michael Hengartner (Rector UZH), Puneet Kishor (Creative Commons), Reinald Klockenbusch (Springer Verlag), René Künzli (terzStiftung), Sten Lindahl (Karolinska, Former Chair of Nobel Committee and Assembly), Stuart Lynn (Adler/Zooniverse), Mike Martin (UZH), Daniela Paolotti (Influzanet), Kevin Schawinski (ETH Zürich), Alice Sheppard (Zooniverse), Effy Vayena (UZH), Beat Widler (WSQMS)

Moderator for Panel Discussions

Barnaby Skinner (SonntagsZeitung and Tages-Anzeiger)

Hands-on Citizen Science

Citizen Science Demo from Zooniverse in the Foyer for the public to participate in citizen science

Thursday, 22 January 2015 – ETH Audimax, HG F 30

08:30 Registration and Coffee

Session 1 - State of the art Chair: Effy Vayena

09:00 **Welcome:** *Prof. Dr. Sarah M. Springman, Rector ETH Zurich & Prof. Dr. Michael Hengartner, Rector University of Zurich*

09:10 **Input lectures (15 min talks)**

Astrophysics research with 250,000 collaborators, *Kevin Schawinski, ETH Zurich, Zooniverse Co-Founder*

From lab to life: Measuring individual health outcomes in real life of old adults, *Mike Martin, Center for Gerontology, University of Zurich*

Crowdsourcing the Analysis of Genomes, *Bastian Greshake, OpenSNP*

Web and Citizen Scientists together against the flu, *Daniela Paolotti, Influenzanet*

Data Privacy and Distributed Statistics: How Smart Phones Can Preserve Privacy while allowing Citizen Health Science in Everyday Contexts, *Steven Boker, University of Virginia*

10:30 **Coffee Break**

11:00 **Panel Discussion on issues**

- Speakers of the previous session
- Alice Sheppard, active citizen scientist on Zooniverse
- **SMS and WhatsApp – Data collections and research projects**, *Christa Dürscheid, UZH*

12:00 **Standing Lunch**

Session 2 – Vision Chair: Kevin Schawinski

13:30 **Input lectures (15 min talks)**

To the Zooniverse and Beyond: The Future of Citizen Science, *Lucy Fortson, Zooniverse, University of Minnesota*

Alter hat Zukunft – sofern das Erfahrungswissen nicht sozial entsorgt wird, *René Künzli, President terzStiftung*

Democratization of science and the personal data economy, *Ernst Hafen, Daten und Gesundheit and ETH Zurich*

Building a Smart Digital Society Together, *Dirk Helbing, ETH Zurich*

Beyond Borders in Science, *Sten Lindahl, Karolinska Institute, former Chair of Nobel Committee and Assembly*

15:00 Coffee Break

15:30 Panel Discussion on issues

- Speakers of the previous session
- **Science in the Global Brain: From Gofer to First Class Citizen**, *Avi Bernstein, University of Zurich (10 min)*
- **Participatory research in gerontology**, *Stefanie Eicher, (UZH) Head participatory research lab of University Research Priority Program "Dynamics of Healthy Aging" (10 min)*

16:30 Close of Day 1

18:30 Speakers' Dinner

Friday, 23 January 2015 – ETH Auditorium HG E 3

Session 3 – Challenges

Chair: Mike Martin

09:00 Input lectures (15 min talks)

Plazi or the challenge to free biodiversity data caught in hundreds of Millions of pages of over 250 years of scientific publications, *Donat Agosti, President Plazi*

Open Research Data Platform Switzerland – the Citizen's Perspective, *André Golliez, itopia*

The current and future technology challenges in citizen science, *Stuart Lynn, Zooniverse*

Licensing the Unlicensable, In this presentation we will explore the options we have to give, collect and share data when the law doesn't offer us options and protection to do so?
Puneet Kishor, Creative Commons

Citizen science in search of an ethic, *Effy Vayena, University of Zurich*

10:30 Coffee Break (Uhrenhalle)

11:00 Panel Discussion

- Speakers of the previous session
- Reinald Klockenbusch, Springer Verlag (5 min)
- Beat Widler, Clinical Research Expert (5 min)

11:55 Introduction to Un-Conference Method, *Kevin Schawinski*

12:00 Standing Lunch (Uhrenhalle)

13:30 Un-Conference

15:00 Reports from Un-Conference

15:45 Concluding Remarks, *Ernst Hafen*

16:15 Apéro (Uhrenhalle)