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The Future of Open Source Research: A Panel Discussion

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1 Description

Over the past decade, FLOSS has become mainstream. It's the technological foundation for a huge percentage of software, including products and services from both startups and established companies, as well as the dominant approach for software development and deployment tools. More recently, FLOSS has become the preferred solution for a growing number of governments and non-profit organizations around the world. What was once a niche research area has similarly become mainstream; FLOSS-related research publications are now found across a variety of social, economic, and software-related publications and conferences. Likewise, open source software is increasingly discussed in connection with open innovation, open government, open data, and related areas.

This growing popularity poses an interesting challenge for FLOSS research. While there remains a core set of topics specifically related to FLOSS, e.g., software licensing, many other topics, such as collaborative distributed development, have much broader applicability. Some researchers who previously submitted their work to FLOSS-related conferences and publications are now seeing many other opportunities to present their work, describing the open source aspects of their research in a broader, domain-focused context.

In this panel, we hope to address not only the most likely future directions for FLOSS research, but also how FLOSS is related to other research fields and the broader context of modern society. The panelists bring a wide variety of academic and industrial experience with FLOSS and related subject areas.

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2 Individual Position Statements

Kevin Crowston

My suggestions for the next phase of FLOSS research starts with observation that FLOSS is a topic, not a field, meaning that while we are looking at the same phenomenon, we do so adopting diverse approaches. So, why might sticking together make sense? A shared conference provides an opportunity to learn about work that you would miss in a disciplinary conference. But such visibility is only valuable if we can find commonalities that bring us together, e.g. sharing common inputs (e.g., datasets), common methods or complementary outputs across disciplines.

However, achieving interdisciplinarity requires a shared sense of priorities about the work to be done. A good common project would be to put our knowledge to work, that is, to tell interested parties how to have successful FLOSS projects (which would also serve as a test of our knowledge). A particular need is in the setting of scientific software. Funding agencies want to see the software they pay for reused and maintained, and openness fits the needs of science for reproducibility and auditability. What advice might we give about how to structure development to achieve quality code and to create a sustainable community around a piece of scientific software?

Joseph Feller

I will discuss the current and potential relationships between FLOSS research and emerging research areas, reflecting upon the activities of the AIS Special Interest Group on Open Research and Practice (SIGOPEN), and of other research communities.

In particular, I will discuss

- the proliferation of open phenomena (e.g. open innovation, open design, crowdsourcing, crowdfunding, volunteer computing, collective intelligence, etc.) and the challenges this proliferation creates for the research community,
- the important intellectual contribution that FLOSS research can make to these emerging fields of inquiry, and vice-versa,
- the implications of FLOSS and related research findings for the creation of a more open practice of scholarly inquiry and dissemination (e.g. open data, open access publishing, etc.), and
- the opportunity and need for greater integration, knowledge sharing, and intellectual cross-pollination between the global open research communities.

Carl-Eric Mols

My proposal for the future of Open Source research focuses on scaling up the software business aspects, in particular scaling up the Open Source maturity of organizations that develop software. While Open Source is widely used in the ICT industry, it is often in a passive, consuming way. It's uncommon to find companies that have extensive Open Source contributions and community participation as their core product/service development strategy, and even more rare to find companies that fully adapt their business models when their offering is increasingly based on Open Source.

With emerging software phenomena such as IoT, Industry 4.0, and Automotive Software, Open Source will massively impact the "traditional", non-ICT industry in many ways, not least in the way software development will need to be organized, and the way business will need to be conducted in order to avoid being eradicated by the Open Source giants. What wisdom on scaling software business can academia bring to the Open Source-challenged industry?

Anthony I. (Tony) Wasserman

I will discuss some implications of FLOSS becoming mainstream, many of which are already apparent. From a research perspective, research results that were previously published in open source research conferences and publications are now appearing in software engineering, economics, and political science conferences and publications. Open source-related research has diffused across various broader interest categories, making it more difficult to keep up with relevant research.

From a broader societal perspective, great improvements in the quantity and quality of FLOSS software has led to its adoption in a broad range of settings. As software has more and more societal impact, there is likely to be greater public demand for transparency and openness, especially for life-critical systems, such as those found in medical devices and autonomous vehicles. People will justifiably want to see the source code of heart pacemakers and vehicle control systems, which are now guarded as intellectual property by their makers; similarly people will expect governments to make extensive use of FLOSS and to make any software developed under government contracts to be released under an OSI-approved FLOSS license. These changes will, in turn, open up new areas for FLOSS-related research.