

Engaging Students in Open Source: Opportunities and Approaches

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ABSTRACT

Recently, many faculty have begun to engage students in free and open source software (FOSS) development both for pedagogical advantage and in response to increased student demand. Faculty see FOSS as providing authentic computing artifacts to enrich course content. Students see FOSS projects as a way to contribute to something real and develop their skills while building a portfolio of their work to share with potential employers. Despite these benefits, CS teachers and students have expressed frustration with the challenges of engaging with existing FOSS projects.

This BOF will provide a forum for faculty to exchange ideas and methods for engaging students in FOSS, including what did and did not work. The kinds of questions that often arise include whether to let students choose their own projects or select projects for them, and whether to establish mentoring relationships with the project community in advance, or to let students develop these relationships for themselves. Other questions often heard are whether to let students form their own work groups, assign the groups, or if students may work by themselves on a project. Conversely, there are FOSS projects that would welcome the help of students but which cannot find students qualified enough to help. This BOF will also allow members of project communities to share their ideas about how educators can forge better relationships between students and FOSS projects.

CCS CONCEPTS

• **Social and professional topics** → **Computer science education**; *Software engineering education*;

KEYWORDS

open source, FOSS, student engagement

1 SIGNIFICANCE AND RELEVANCE OF THE TOPIC

Working in an open source software project gives students experience participating in a real, community-based organization. They learn how to communicate and interact with a global on-line community of developers and users. The open of open source provides a rich authentic experience with access to real project artifacts and their complexity that is otherwise difficult to provide in an academic setting. FOSS experience will serve students well as a recent Tidelford survey showed that FOSS has become essential in industry, with 95% of all application systems now incorporating FOSS. Many FOSS projects have a socially responsible or a humanitarian purpose, which holds the potential to draw a more diverse group of students to the discipline. Most CS faculty who work with students in these courses believe that the students will grow professionally by becoming engaged with the communities.

BOF attendees may represent varying degrees of experience in engaging students with FOSS, and will benefit from hearing the varied viewpoints of others. They will also connect with other people who have similar interests and goals in teaching their classes. Discussion leaders and participants will share knowledge of existing resources and communities that support the incorporation of FOSS into computing education (e.g. POSSE, Foss2Serve, Teaching Open Source.)

2 EXPECTED AUDIENCE

We expect the audience to consist of faculty who have taught or are interested in teaching open source software development to students. Based upon the attendance at BOFs in previous years on related topics, we believe that it might draw between thirty and forty people.

3 DISCUSSION LEADER(S)

In addition to myself, Grant Braught, Joanna Klukowska, and Wes Turner have agreed to be discussion leaders.

4 EXPERTISE OF DISCUSSION LEADER(S)

Stewart Weiss is an Associate Professor of Computer Science at Hunter College of the City University of New York. He has taught CS for more than 33 years, during which he has integrated open source concepts into almost all of the courses he has taught. He created a course in open source software development, which he has been teaching since spring 2018,

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and has engaged students in many open source projects, in and out of the college. As the mentor of the ACM Student Chapter, he has engaged them in several open source events.

Grant Braught is a Professor of Computer Science at Dickinson College. He engages students in humanitarian FOSS across the curriculum with the goals of broadening participation, deepening engagement, raising awareness of computing for social good while enhancing students technical skills. He is a first round winner in the GNOME Community Engagement Challenge and a CO-PI on an NSF grant focused on integrating HFOSS in the curriculum.

Joanna Klukowska is a Clinical Associate Professor of Computer Science in New York University. She has been teaching a course dedicated to open source software development for several years and has been introducing students to open source concepts in other courses. She helped to establish an open source student club on campus and has been its faculty adviser since its inception. She is interested in engaging students in open source projects inside and outside of a classroom environment.

Wesley Turner is a Senior Lecturer and the Director of the Rensselaer Center for Open Source (RCOS) at Rensselaer Polytechnic Institute (RPI). At RPI, he has been running a program every semester that allows undergraduates to participate in open source projects for independent study credit as well as teaching a separate Open Source Software course. Prior to joining RPI, Wes was involved in open source in industry beginning in 2001 and served as the Director of Open Source Operations for the Open Source Electronic Health Record Agent (OSEHRA) a Veterans Administration (VA) funded body with the charter of "Open Sourcing" the VAs health records software.

5 PROPOSED ACTIVITY DURING BOF

We plan to ask each attendee in turn what experience they have in engaging students in open source software, and how they have solved specific problems their students come across.. After that, we will open the floor to a free exchange of ideas and suggestions.