



“I've always learned best using a hands-on approach.
There was plenty of great support and guidance as well.”

-- a student at a recent OpenHatch event

Open Source Comes to Campus For Women in Computing

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Executive Summary

Even though 20-30% of computer science undergraduates are women, the proportion of women contributing to open source communities is much smaller than that. Activity in open source gives participants hands-on learning and community visibility. By working directly with local student organizations, OpenHatch will work to make these opportunities available to more women in computer science during the 2013 calendar year by running seven workshops, helping around 200 students understand open source and make their first contribution.

This would be a continuation of OpenHatch's Open Source Comes to Campus program, an effort that has taught workshops at MIT, Johns Hopkins, the University of Pennsylvania, Rensselaer Polytechnic Institute, and the University of Maryland. Our weekend workshops teach how young computer scientists can contribute to free, open source software. This document covers a new subprogram specific to women in computing will help meet the strong demand for the program and create staff resources to evaluate and further improve the program's impact.

OpenHatch is the right organization to lead this effort. Its board members collectively have decades of experience as active code contributors to open source projects like Twisted and Debian, leaders in organizations like the Free Software Foundation and Creative Commons, and community teachers through student organizations and local programming groups.

This proposal provides information about the need for this program, full details of how the program will be executed and evaluated, the budget for the program, more details about OpenHatch itself, and the sponsorship opportunities available for organizations interested in contributing. A detailed budget break-down appears in Appendix A, page 15.

Statement of Need

Free, open source software lays the foundation for user empowerment, fast-growing businesses, and rigorous academic research. A variety of surveys (Ghosh et al, 2002¹; Kieren Diment, “Perl survey²”) indicate only 1-3% of free software contributors are women. For any free software community to provide software that meets the needs of a wide variety of users, it needs a wide variety of perspectives influencing its development.

By comparison, IT professions and science and engineering generally are quite gender diverse. The most recent National Science Foundation report indicates that 44% of employed scientists and engineers are women³, and in academia, 21% of computer science doctorate degrees are earned by women⁴. For undergraduate degrees, the NSF reports that similar percentages apply.

At OpenHatch, we believe that the relative absence of women in free, open source software projects occurs in part simply because clear participation opportunities are not made apparent in a gender-neutral way. For example, when we have advertised free-of-cost workshops for how to participate in free software, 18-50% of our attendees have been young women. Typically, the proportion of women at our events is greater than the proportion of women enrolled in the computer science undergraduate program where we hold the event.

Undergraduate student life affords many opportunities to participate in free, open source software. Ghosh 2002 shows that one-third of free software participants begin contributing between the ages of 16 and 20. Personal experience also indicates that college life can provide time and flexibility to write, experiment with, and read open source software.

Bringing more women into free, open source software development will also provide increased access to job opportunities. The number of employers looking for skills directly related to free, open source software is increasing⁵. Beyond that, proprietary software companies often see open source software contributions on sites like Github, where code samples are transparent and easy to access, as a great way to evaluate job candidates⁶.

Participation in open source projects gives exposure to current technologies. One programmer writes, “My last 4-5 jobs I got only because of the skills I acquired from the open-source work⁷.” Anecdotally, the publicity benefits, communication skills, and management experience one gains while

¹ http://www.flossproject.org/report/Final4.htm#_Toc13908243

² <http://survey.perlfoundation.org/Data-PerlSurvey-2010/R/>

³ <http://www.nsf.gov/statistics/wmpd/sex.cfm>

⁴ <http://www.nsf.gov/statistics/infbrief/nsf08308/>

⁵ http://www.theregister.co.uk/2011/11/29/open_source_and_the_job_market/

⁶ <http://code.dblock.org/github-is-your-new-resume>

⁷ <http://www.careercast.com/jobs-rated/10-best-jobs-2012#comment-88791>

participating in open source are remarkably helpful. Women, as well as men, deserve access to these benefits.

In our opinion, the breadth of free software projects can offer women a chance to defeat the much-discussed “incredible shrinking pipeline¹” of female CS undergraduates leaving their programs. By providing access to programming communities where software engineering makes a difference, the social value of engineering can be made more evident than in a classroom setting.

Finally, bringing more women into free, open source software development is of direct benefit to the free software movement and open source projects within it. The lack of women’s participation in community-driven software, and yet the vast enthusiasm we see from our gender-neutral Open Source Comes to Campus events, suggests a vast, untapped pool of contributors. This finding is mirrored by the findings of the first GNOME Women’s Outreach Program in 2006; advertising a women-specific outreach program attracted almost 100 applications where, the year before, they had received zero from women².

¹ Camp, Tracy. <http://dl.acm.org/citation.cfm?id=543846>

² <http://gnomejournal.org/article/48/the-womens-summer-outreach-program>

Project Description

Open Source Comes to Campus is a weekend workshop with three major components: Laptop setup; introductory exercises and teaching; and hands-on projects time. We will work directly with women in computing organizations at college campuses to run seven workshops over the course of 2013. To do that, to scale the program to work more effectively with volunteers, and to evaluate the impact of the program, we aim to bring in more staff.

The laptop setup component derives from our experience with diversity-oriented introductory programming workshops such as the Boston Python Workshop for women and their friends. Providing clear instructions for configuring text editors, IRC, git, and other technical tools can overcome a substantial barrier to contribution.

The teaching portion comprises highly-interactive lectures paired with lab exercises. We use interactive web-based teaching tools called “training missions” on the OpenHatch site to smooth the hands-on portion. To teach the command line, we explain the basics and underlying concepts, show students how to prepare a patch, and then ask them to try the patch training mission. For teaching version control, we provide a lecture with visuals that explain git’s underlying model, after which students use the git training mission to submit a patch to a virtual open source project. We also deliver a lecture on the history and ethics behind free, open source software, enabling students to contextualize their work in the broader movement and industry.

One recent addition to the teaching program is a “Career panel,” where staffers discuss their experience with open source in a question-and-answer format. This clarifies the role open source plays in industry, and we emphasize the students’ access to those people throughout the workshop. One young woman at a recent workshop remarked, “It was really cool to meet and hear from people involved in such big open source projects.”

Finally, during the projects time, volunteers and OpenHatch staff work to help students contribute a patch to a real free software community. This process requires selecting good “bitesize bugs” from open source communities. To clarify the process, we maintain a checklist-driven guide for students to work through¹. Mentors sit with students and answer questions about the community’s process, the software engineering or documentation task ahead of the student, and guide the student to making an impact on a real project.

Organizing these workshops takes a substantial amount of time. We identify local professionals active in free, open source software and help them understand the workshop so they can be effective TAs and mentors. Identifying good tasks for students takes considerable time, including the process of finding projects amenable to these small contributions and testing the build process for projects to ensure it does

¹ <http://labs.openhatch.org/foss-contrib-guide/>

not take too long. For this reason, OpenHatch is excited to have more staff resources to manage this outreach effort.

The executive director will also take an active role in managing and scaling the project. In terms of management, executive time is needed to empower the project manager with community connections to find volunteers, provide feedback on curriculum questions, and ensure proper accounting. To scale the project, the executive director will invest further time in revising the training missions, creating new ones, and creating a training framework for certifying OpenHatch volunteers. That work will provide a lasting boost to OpenHatch's ability to impact the community.

The Open Source Comes to Campus program began in September 2010, and we have visited 5 institutions so far. The events have attracted dozens of volunteer staffers, and over a hundred students have signed up. We have iterated based on exit survey feedback and thoughts from OpenHatch board members and advisers. As we detect further ways to improve the program, we may revise some of the program details during the course of 2013.

Program evaluation

Our workshops formally ask attendees for feedback to identify the strong parts of the program and where we can improve. We will continue to run these exit surveys during the women-specific Open Source Comes to Campus program. To evaluate the program's impact on the free software community, we are especially interested in answers to the following questions:

- Do you plan on continuing to learn more and participate in open source projects since attending?
- In the time since the workshop, has your participation in one or several open source projects increased as an observer or visible contributor?

We ask students for their favorite parts of the program and for improvement points to evaluate individual teachers and curriculum components. At the end of the program, we will publish the anonymized aggregate data.

We will bring two new evaluation elements to this new program. First, we will check in with attendees periodically to find out if we can help with any plans or goals they have with regard to getting more involved in free, open source software projects. Second, at the end of the program, we will work with Women in Computer Science organizations to poll students who both did and did not attend our events. From this, we will be able to see if our program positively impacted attendees, and see our impact on their enthusiasm for, and activity level within, open source.

Gender statistics from past programs

So far, Open Source Comes to Campus events have seen a more even gender ratio than the CS program that hosts them. A new gender-specific subprogram will help us focus even more strongly on bringing more women into free, open source software. This table compares percent of women at some of our events with the proportion of women enrolled in computer science.

<i>Institution</i>	<i>% of women at event, approx.</i>	<i>% of women in CS program</i>
University of Pennsylvania	30	9-30 ¹
MIT	50	38 ²
RPI	22	9 ³

¹ Source: Conversation with Dr. Susan Davidson; 9% if you count only computer science, and 30% if you count the Digital Media Design program which combines computer graphics with computer science.

²<http://www.eecs.berkeley.edu/~ychen2/professional/GenderBalanceInUCBerkeleyEECS.pdf> . Data is from 2006 and based on publications from the MIT Office of the Registrar.

³ Source: <http://www.cs.rpi.edu/people/students/statistics.html>

Budget

To organize these workshops, stay in touch with student computing groups, and assemble volunteers, we need another staffer. Funds for this person's work comprise the plurality of the budget. In addition, the budget allows for 25% of the executive director's time to provide input on the program and review its progress.

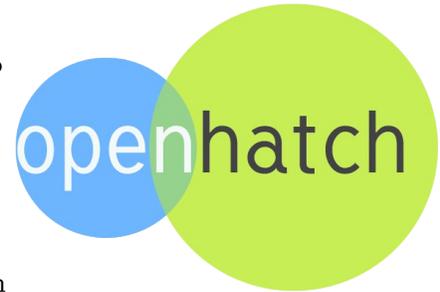
The budget addresses variable costs per each of the seven events. Travel to and from the venues is factored in at an average of \$675 per person for airfare and possible hostel/hotel stay for each of two lead organizers. The budget also includes funds to provide lunch and breakfast food to the attendees of the event, at an approximate cost of \$600 per event.

A basic 20% organizational overhead rate covers legal, fundraising, bookkeeping, and other organizational costs. The total is \$74,040. Any extra money raised will be rolled into OpenHatch's operational budget, increasing the reach and number of these workshops, especially along the U.S. west coast.

A detailed breakdown of the budget appears in an appendix. Information about sponsorship opportunities appears on the page before it.

Organization Information

OpenHatch is a non-profit with the goals of lowering the barriers to entry into open source contribution and increasing diversity. We achieve these goals through in-person outreach efforts and web-based teaching tools. We are awaiting a determination from the IRS on our status as a 501(c)3 tax-exempt educational organization.



In person, we have organized a number of events. Our Open Source Comes to Campus events teach college students how to participate in open source communities. We have organized outreach events with Python user groups and provided advice to programming meetup communities on how to make the user groups more gender-diverse and welcoming to newcomers.

Online, our web tools have helped thousands of people. Interactive, plot-driven tutorials on the web called “training missions” have taught basic open source involvement skills to 2,104 distinct users¹. Our “volunteer opportunity finder” downloads information from bug trackers and enables finding a task in open source suited to one’s interests. We also maintain tools to indicate interest in helping a project and enable getting in touch with a maintainer.

Although the non-profit organization is formally about one year old, we began developing the OpenHatch web tools in summer 2009. Over the organization’s life, OpenHatch board members have been invited to conferences such as PyCon, OSCON, linux.conf.au, and the LinuxCon Education Summit to discuss how open source projects can be more welcoming.

Our outreach efforts achieve sustained impact because we work with existing communities. For one example, the Boston Python Workshop changed the gender ratio at Boston Python user group events from 2% women to 18% within seven months. With the mentorship of OpenHatch board members, PyStar Philadelphia has run four introductory programming workshops, boosting the user group’s diversity. It is this experience that led us to build an open source workshop series that works directly with local computing clubs.

¹ Source: Database query based on <https://openhatch.org/blog/2012/1137-people-have-learned-free-software-skills-with-the-help-of-openhatches-training-missions/>

Board members



Asheesh Laroia, Executive director

Asheesh loves growing camaraderie among geeks. In the past, he has chaired the Johns Hopkins Association for Computing Machinery and taught Python classes at Noisebridge, San Francisco's hackerspace. He realizes that most of the work that makes collaborative projects successful is hidden beneath the surface.

He has volunteered his technical skills for the UN in Uganda, the EFF, and Students for Free Culture, and is a Developer in Debian. He has worked at Creative Commons and the Participatory Culture Foundation as a software engineer, designing and scaling web systems. Today, he lives in San Francisco, CA, working on OpenHatch.org.



Jessica McKellar, Director

Jessica wants more people to be excited about and science and computing. She is an organizer for the Boston Python user group, lead organizer for the Boston Python Workshop, and a mentor with several Science, Technology, Engineering, and Mathematics (STEM) outreach initiatives at local schools in Cambridge, MA. She is a contributor to several open source projects and enjoys helping bring new contributors into the community.



Karen Rustad, Director

Karen is a software engineer at Disqus. She recently graduated with a master's degree from UC Berkeley's School of Information, with interests in Python-based web development, user experience design, free software communities, and technology law and policy. She has been involved with OpenHatch since its startup incubator days in 2009, contributing to the project's design, codebase, and mission. She served previously on the board of Students for Free Culture from 2005 to 2008.



Deborah Nicholson,
Director

Deb works at the intersection of technology and social justice. She has over fifteen years of non-profit management experience and got involved in the free software movement about five years ago. She currently splits her time between MediaGoblin -- a federated media-hosting start-up, Open Hatch -- a non-profit dedicated to identifying and mentoring new free software contributors, the Open Invention Network, and Harvard, where she is slowly pursuing a graduate degree in Information Technology. She lives in Cambridge, Massachusetts.



Mike Linksvayer, Director

Mike Linksvayer has served as Vice President and CTO at Creative Commons, where he started in 2003. Previously he co-founded Bitzi, an early open data/open content/mass collaboration service, and worked as a web developer and software engineer. He lives in Oakland, California.

Sponsorship opportunities

As a non-profit organization, OpenHatch relies on the support of organizations and individuals that share our goal of increasing participation in free, open source software projects.

These opportunities apply to the seven events described in this document, which will reach about 200 people and be specially advertised to women in computer science at top institutions. Additionally, we will spread the word to technology press about your generous support for our efforts.

\$32K Platinum level sponsorship

- An invitation to provide brand signage at every workshop, and to provide gifts to attendees from your organization
- Your name and logo at opening and closing of all workshops
- Your name and sponsorship level on the program website
- Your name and sponsorship level on all email and web announcements we publish the program, as well mentioned to media in interviews about the program
- Special invitation to send a person to career panels at all seven events

\$16K Gold level sponsorship

- Your name and logo at opening and closing of all workshops
- Your name and sponsorship level on the program website
- Your name and sponsorship level on all email and web announcements we publish the program, as well mentioned to media in interviews about the program
- Special invitation to send a person to career panels at three events

\$8K Silver level sponsorship

- Your name and sponsorship level on the program website
- Your name and sponsorship level on all email and web announcements we publish the program, as well mentioned to media in interviews about the program
- Special invitation to send a person to career panels at two events

\$4K Bronze level sponsorship

- Your name and sponsorship level on the program website
- Your name and sponsorship level on all email and web announcements we publish the program
- Special invitation to send a person to a career panel at one event

\$1,500 Patron level sponsorship

- Your name and sponsorship level on the program website
- Invitation to send a person to a career panel at one event

\$1,000 Individual event sponsorship

- Your name and sponsorship level in email and web announcements about that event

If you are interested in sponsoring the Open Source Comes to Campus workshop series, please get in touch directly with Asheesh Laroia at asheesh@openhatch.org. In-kind sponsorship opportunities may be available as well.

Appendix A. Detailed budget

<i>Item</i>	<i>Summary</i>	<i>Details</i>	<i>Cost</i>
Project director	Part-time role to identify campuses to target, identify and organize volunteers, and implement the evaluation program	24 hours a week @ \$20/hr for 50 weeks	24000
		25% taxes and benefits	6000
Executive director	Partial time of executive director to supervise the project	10% at \$60K	6000
	Partial time of executive director to improve training missions and implement a plan to scale the workshops	15% at \$60K	9000
		25% taxes and benefits	3750
Travel	Airfare and lodging as needed	\$1250 per event for 7 events	8750
	Lunch and breakfast and other food for students and volunteer instructors	\$600 per event for 7 events	4200
Project total			61700
Overhead	20% of project cost		12340
Total			74040