



THE LINUX FOUNDATION
OPEN SOURCE SUMMIT
NORTH AMERICA

Contributor Catalyst

New Contributor Perspectives from an
HBCU Mentorship Program

Emily Lovell, Ph.D.
University of California, Santa Cruz

Silas Morgan
Norfolk State University



Meet the Speakers

- Associate Director, UC Santa Cruz Open Source Program Office
- Contributor Catalyst lead mentor
- Previously faculty at Berea College

Dr. Emily Lovell



Silas Morgan



- Norfolk State Graduate Student
- Contributor Catalyst participant & two-time Alumni Mentor
- Contracted with Processing Foundation

Motivation

- Science and engineering talent gap disproportionately affecting Black/African Americans
- Team of collaborators:
 - Teaching open source
 - Teaching at an HBCU
 - Shared focus on broadening participation in computing
- Together, aim to move the needle in one tech subfield: open source software

FIGURE 2: MISSING MILLIONS: FASTER PROGRESS IN INCREASING DIVERSITY NEEDED TO REDUCE SIGNIFICANT TALENT GAP

While the number of people from under-represented groups in the S&E workforce has grown over the past decade, much faster increases will be needed for the S&E workforce to be representative of the U.S. population in 2030. To achieve that goal, the NSB estimates that the number of women must nearly double, Black or African Americans must more than double, and Hispanic or Latinos must triple the number that are in the 2020 U.S. S&E workforce. These estimates are based on projections from the U.S. Census and Bureau of Labor Statistics, together with data from the National Center for Science and Engineering Statistics, and assume that participation of these groups in the S&E workforce increases at current rates.



Source: National Science Board

Why Open Source?

- Support students in building a public-facing technical portfolio
- Offer experience with industry tools and technologies
- Facilitate real-world impact on projects or causes students care about



Mentorship, because...

- Amplifies experience of working in a *community* of practice
- High-touch relationships can help foster a sense of *belonging*



Co-Design Wishlists

Norfolk State University

- In-person component
- Cohort model
- Tailored course prerequisites
- HBCU faculty visits



UC Santa Cruz

- Flexibility around other summer opportunities/obligations
- Hybrid work environment
- Network-building and skill-building via conference opportunity



8-Week Summer Program

1 WEEK REMOTE → 4 WEEKS IN PERSON → 3 WEEKS REMOTE



First half:

- Learn “how to open source”
- Tools, norms, project and community research

Second half:

- Contribute to an open source project
- Continued program mentorship and community support



8-Week Summer Program

1 WEEK REMOTE → 4 WEEKS IN PERSON → 3 WEEKS REMOTE



In person:

- Workshop-style instruction
- Community-building

Remote:

- Co-working on Zoom and Slack



8-Week Summer Program

1 WEEK REMOTE → 4 WEEKS IN PERSON → 3 WEEKS REMOTE



Throughout: diverse variety of guest mentors

(Including Tom Callaway, Karsten Wade, Jay White, and many more)



Additional Details



- **Fully funded:** travel, weekly stipend, housing/meals, bus pass, post-program conference (*All Things Open*)
- **Full-time commitment** (30+ hrs/week)
- **Connection with UCSC African, Black, and Caribbean student community + visiting HBCU student community** (*Thanks to our campus partners!*)

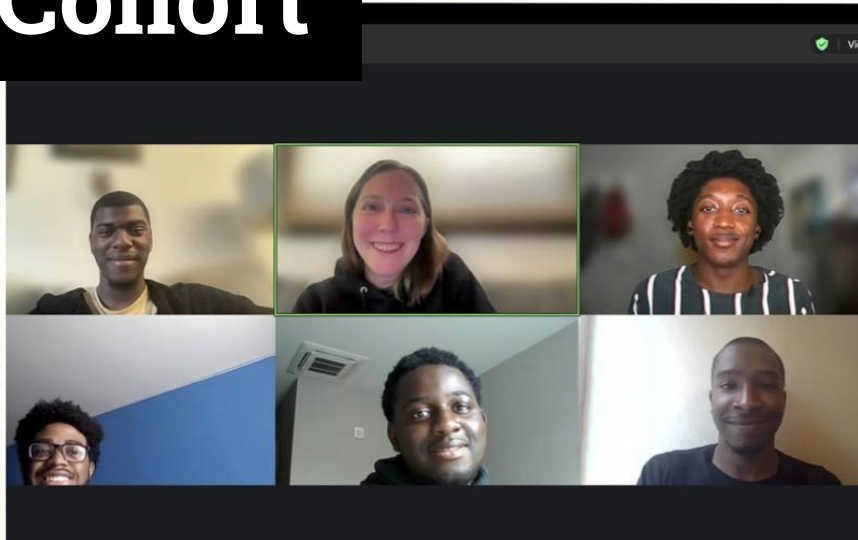


2023 Cohort





2024 Cohort



2025 Cohort




 Kaylee Williams (she/her)




Emily Lovell (she/her)




 Nia Perez (she/her)




 Kayla Bobo (she/her)




 Denzel Caine(He/Him)



 Kailea Lee




 Amante' Woodley (He/Him)



 Jakiya Brown (She/Her)



 Devon Bobo

The Work of a Catalyst Contributor

English Español 简体中文 한국어 हिन्दी

p5.js

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Hello!

p5.js is a JavaScript library for creative coding, with a focus on making coding accessible and inclusive for artists, designers, educators, beginners, and anyone else! p5.js is free and open-source because we believe software, and the tools to learn it, should be accessible to everyone.

Using the metaphor of a sketch, p5.js has a full set of drawing functionality. However, you're not limited to your drawing canvas. You can think of your whole browser page as your sketch, including HTML5 objects for text, input, video, webcam, and sound.

Start creating with the p5 Editor!

Community

- Documentation
- Spanish language translation
- Code/function examples
- Advocacy and code to address a six-year-old issue!



Silas' Experience In a Nutshell

- Started off as a participant
 - Didn't know about Open Source
- Guided Activities
 - Worked in our own repository
 - Worked on individual pull requests
 - Learned how to communicate issues and PRs effectively
 - Researching Projects
- Went on to work on [p5.js](#)
 - Opened group issues
 - Performed group pull requests
 - Then moved to working on our own PRs



p5.js

What is it?

- A coding library for lower code barrier
- Make creative coding projects
- Integrate artwork, personality, and creative expression into code projects

Core Values

- Prioritize accessibility for those with disabilities and external barriers
- Maintain a learner's (growth) mindset



Silas' Experience: First Solo Pull Request

- First big code issue
 - Issue in [p5.js](#) pertaining to line endings on windows
 - Opened by another contributor who allowed me to take over
- Proposed adding a file called .gitattributes
 - Similar fix proposed 5 years prior that was not accepted
 - Modified and used code from professionals we had previously met
 - Got permission and credited them
 - Forced line endings to remain “Line Feed”(LF rather than Carriage Return LF)
 - Resolved in 2 weeks



Working in the Open:

npm test command not working in Windows OS #6207

Closed

#6317



AryanKoundal opened on Jun 13, 2023

Contributor ...

Most appropriate sub-area of p5.js?

Operating System

Windows 10

Steps to reproduce this

The command `npm test` is failing while doing the project setup.

Steps:

1. Create a fork of the p5js repository
2. Clone the fork in the local machine
3. Execute `npm ci`
4. Execute `npm test`

Error after executing the last command

```
D:\p5 repo\p5.js\utils\sample-linter.js:253:22: Expected linebreaks to be 'LF' but found 'CRLF'. [Error/linebreak-style]
D:\p5 repo\p5.js\utils\sample-linter.js:254:34: Expected linebreaks to be 'LF' but found 'CRLF'. [Error/linebreak-style]
D:\p5 repo\p5.js\utils\sample-linter.js:255:60: Expected linebreaks to be 'LF' but found 'CRLF'. [Error/linebreak-style]
D:\p5 repo\p5.js\utils\sample-linter.js:256:18: Expected linebreaks to be 'LF' but found 'CRLF'. [Error/linebreak-style]

1504 problems
Warning: Task "eslint:build" failed. Use --force to continue.

Aborted due to warnings.
```



SilasVM on Jul 31, 2023

Contributor ...

One thing I did that fixed this on windows was run `git config --global core.autocrlf false`.

You can check the value of this variable with `git config core.autocrlf`

From what I know this pretty much prevents windows from messing with the line endings and imports them as intended

This should be run before cloning your repo locally. I've had some others in my cohort run the same command and it fixed their issues. Let me know if this helps.



2



SilasVM mentioned this on Aug 2, 2023

Added `.gitattributes` to Increase compatability with Window users and line endings #6317



SilasVM on Aug 7, 2023

Contributor ...

I've opened PR #6317 which is an option to fix this indefinitely and user limzykenneth is looking for other Windows users to test it out.

If you're on windows and open to testing it out here are some instructions on what to run from the CL:

1. Run the following: `git config --global core.autocrlf true`, in your terminal to ensure default settings are in place.
2. Run `git clone https://github.com/SilasVM/p5.js.git`
3. Enter your new clone with `cd p5.js`
4. In your new clone run `npm ci`
5. Next run `npm test` and let us know the results [here](#)

Thank you in advance to any testers. ❤️



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Working in the Open


Gitattributes #2484

 Closed Zalastax wants to merge 2 commits into `processing:master` from `Zalastax:gitattributes` 

 Conversation 1

 Commits 2

 Checks 0

 Files changed 2



Zalastax commented on Jan 1, 2018

Member ...

Adds `.gitattributes` to ensure that everyone performs automatic EOL conversion.
Also removes the line endings setting from the `editorconfig`, since it should be platform specific.
Replaces [#2431](#).

I'll also add to the development wiki that Windows users are recommended to perform their pull requests using `git clone git@github.com:YOUR_USERNAME/p5.js.git --config core.autocrlf=true`. With the default command, a user like me could have accidentally turned off `autocrlf`. Having `autocrlf` off means that `sample-linter` breaks.

[@Spongman](#) looks OK?
Any precommit hook or similar that can ensure no CRLF gets committed?



Imccart commented on Mar 19, 2018

Member ...

i don't have enough information about this one to see why this is necessary or how it fits with [#2505](#). i'd prefer to leave as is now and rely on developers to set their settings manually.



Working in the Open:

Merged davepagurek merged 3 commits into processing:main from SilasVM:main on Aug 11, 2023

Conversation 6 Commits 3 Checks 0 Files changed 1



SilasVM commented on Aug 2, 2023 • edited

Contributor

Resolves #6207

Changes:

Added a file, .gitattributes, which forces line endings to LF with default Windows settings which would typically change them to CRLF. I've tested this on my own device and everything worked smoothly (Screenshot below) It also worked on @snwarner22's device with one error due to a test taking too long to run on his device.

I saw that another issue and PR were closed 6 years ago, #2484, which also could have fixed the problem. I think it's really a compatibility issue. This .gitattributes file would make the library more compatible with windows and overall easier for new contributors to use. I'd like to ask that the community reconsiders adding this file so future users don't encounter this issue and potentially get deterred from working on p5.js.

The windows portion of my team encountered this and found another fix `git config --global core.autocrlf false`, but this would impact the user's whole device and might be difficult for others to discover. I'd also like to note I've run this 3 times on my device all with all tests passing.

I'd also like to mention that I'm working from the main branch as that was the best way to ensure the file was working properly. I understand it's best to work from a feature branch and hope this doesn't cause any issues.

TESTING!

Testing has been requested and would be very helpful. If anyone on Windows is open to testing all you need to do is:

1. Run the following: `git config --global core.autocrlf true`, in your terminal to ensure default settings are in place.
2. Run `git clone https://github.com/SilasVM/p5.js.git`
3. Enter your new clone using `cd p5.js`
4. In your new clone run `npm ci`
5. Next run `npm test` and let us know the results in the comments

Article where info was pulled from:

<https://dev.to/deadlybyte/please-add-gitattributes-to-your-git-repository-1jld#gitattributes-reset>

File Authors

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Co-authored-by: Silas Morgan victorsmorgan@gmail.com

Reviewers:

Sekani Warner wsekani@gmail.com

PR Checklist

- ☒ `npm run lint` passes
- ☒ [Inline documentation](#) is included / updated
- ☒ [Unit tests](#) are included / updated



1

Working in the Open

Merged Added .gitattributes to increase compatibility with Windows users and line endings #6317
davepagurek merged 3 commits into `processing:main` from `SilasVM:main` on Aug 11, 2023

SilasVM commented on Aug 4, 2023 Contributor Author ...

I also wanted to add a bit more context to this PR.

[@aditya-shrivastav](#) I saw you opened [#5971](#) which is a problem also caused by line endings. If you could check out my contribution, I think it solves your problem. I also agree with your previous issue where you said this would really help new comers as the whole windows portion of my Research team experienced problems stemming from this

Also I saw that [@limzykenneth](#) closed your issue commenting that the line endings for p5.js are to remain LF. My change force converts line endings back to LF on windows without having to install the plugin that Aditya mentioned. I believe it checks the boxes for both of you. I did take note of the .editorconfig file you mentioned and I think this could be a more effective fix as it bypasses that plugin. I think it hits the boxes for both of you, and would appreciate your input.

👍 ❤️ 1

limzykenneth commented on Aug 4, 2023 Member ...

@AryanKoundal or anyone who came across the problem in the original issue, can you have a try to see if this solves the problem for you as well?

👍


SilasVM commented on Aug 4, 2023 Contributor Author ...

I saw that [@AryanKoundal](#) was meant to be mentioned. I'd appreciate if you could check this out too!

👍

thatguyseven commented on Aug 7, 2023 · edited Contributor ...

[@SilasVM](#) [@limzykenneth](#) I tested this and it seems to work on my device. Here's a screenshot of my results:



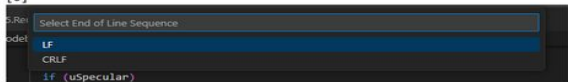
Merge branch 'processing:main' into main Verified ✓ a2ad310

AryanKoundal commented on Aug 11, 2023 · edited Contributor ...

I saw that [@AryanKoundal](#) was meant to be mentioned. I'd appreciate if you could check this out too!

Apologies for replying late, yes it is working now. I am a beginner, I had a question though, is was using vs code and it allows me to change the end-of-line sequence to CRLF or LF[0]. But I could only change the eol after importing the repo and I was getting the errors related to eols.

DP you know why wasn't that feature working?



davepagurek commented on Aug 11, 2023 Contributor ...

My guess is that the vscode setting only applies to new changes you make, whereas the git changes convert everything when you clone. That's just my guess though!

Thanks for testing [@thatguyseven](#) and [@AryanKoundal](#)! I'm going to merge this in so that you're all unblocked from developing on Windows.

👍 ❤️ 2 🚀 1

davepagurek merged commit `c264b1b` into `processing:main` on Aug 11, 2023 View details Revert

2 checks passed

Working in the Open

main GitKit / .gitattributes

Find file Blame Edit

test: add pinning test for deploy script
Stoney Jackson authored Apr 7, 2023

Verified 085b6f5 History

Code owners Assign users and groups as approvers for specific file changes. [Learn more.](#)

.gitattributes 3.79 KiB

```
1 # Common settings that generally should always be used with your language specific settings
2
3 # Auto detect text files and perform LF normalization
4 *      text=auto
5
6 #
7 # The above will handle all files NOT found below
8 #
9
10 # Documents
11 *.bibtex  text diff=bibtex
12 *.doc     diff=astextplain
13 *.DOC     diff=astextplain
14 *.docx    diff=astextplain
15 *.DOCX    diff=astextplain
16 *.dot     diff=astextplain
```

```
1 + # Common settings that generally should always be used with your language specific settings
2 +
3 + # Auto detect text files and perform LF normalization
4 +
5 + # Scripts
6 + *.bash  text eol=lf
7 + *.js    text eol=lf
8 +
9 + #
10 + # Exclude files from exporting
11 + #
12 +
13 + .gitattributes export-ignore
14 + .gitignore     export-ignore
15 + .gitkeep       export-ignore
16 +
17 + # Apply override to all files in the directory
18 + *.md linguist-detectable
```

*Thoughts from a new
contributor who stuck around...*

Attracting New Contributors

Making Your Project Inviting

- Have documents geared towards newcomers
 - Contributor guidelines
 - Doc style guide
- Set up “Good First Issues”
- Be patient and understanding

Your Maintainers

- Make yourselves known and be encouraging
- Have open communication channels
- Invite new contributors to project meetings (keep them in the loop)



**Think about inclusion in terms of
attracting new contributors
... but also keeping them**



Keeping New Contributors

Invest in them

- Create workshops
 - Set up mentorship
 - Contract them if possible
 - Offer guidance and advice
 - Respond to requests in a timely manner
- Use updated communication methods they already know
 - Keep guidelines simple
 - Prioritize new contributor pull requests (publicize response times)
 - Acknowledge them



How p5.js Kept Me Engaged

How p5.js Invested In Me

Acknowledgment

- Added me to their Contributor list
- Accepted my changes, or explained what I could do differently
- p5.js lead reached out personally to thank my cohort for our contributions

They Contracted Me

- Invited me to work on p5.js 2.0, their latest large project
- Provided 1-on-1 mentorship during my contract
- Helped me find structure and kept up with me throughout my task



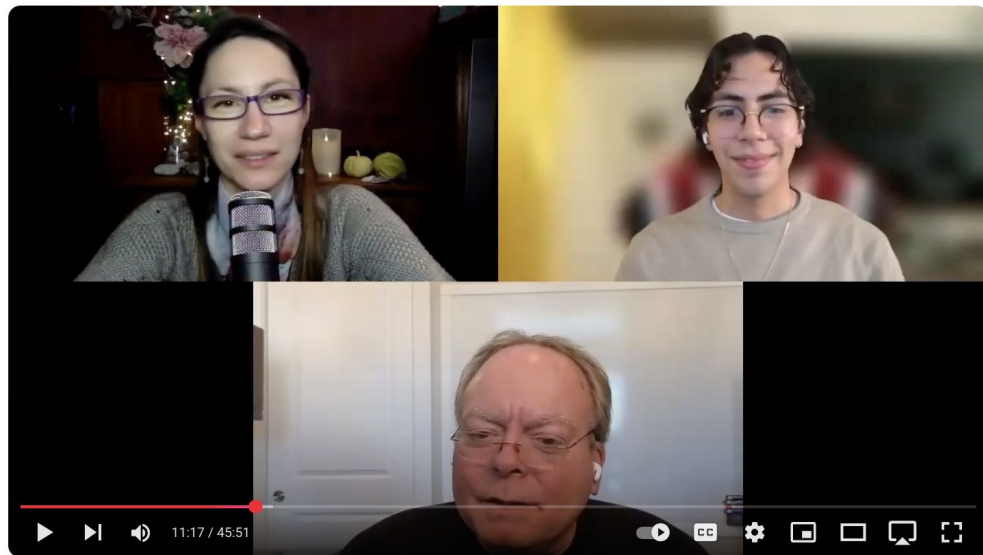
What's the impact?

"I assumed that professional coders were knowledgeable about every aspect of their field.

Over the course of the summer, I have begun to realize that being a programmer means encountering problems you haven't had the faintest idea about where to start and slowly work towards finding [a] solution . . ."

" . . . [this] seems much more realistic and feasible to me now."

Contributor Catalyst Alumni have...



Onexi Medina - Contributing to Open Source Projects as a Student | My Open Source Experience Podcast



- Returned to mentor their peers
- Been offered paid work in open source
- Presented at conferences (FOSSY, OSSNA)
- Been invited guests on podcasts
- Credited the program as influencing their: pursuit of graduate education, success in landing employment (with competitive pay)

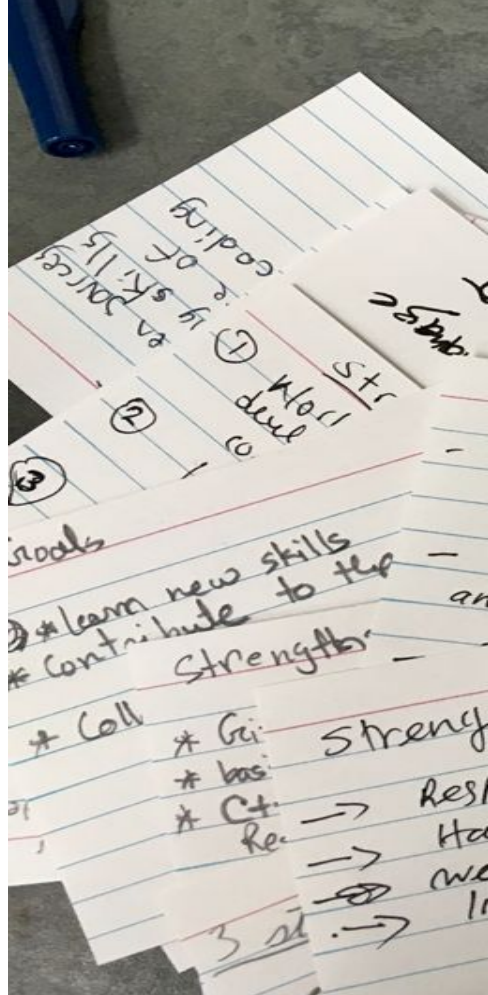


What's Next?

Pilot cohort feedback helped us secure \$1M in funding from the National Science Foundation!

Planned to incrementally grow the program over three years, including:

- Expansion to 6 partner HBCUs
- Cohorts growing to ~24 students/year, with increasing peer/alumni mentor support
- An advisory board of HBCU faculty members
- Evaluation to better understand impact



But now... we need your help!

National Science Foundation Terminates Hundreds of Active Research Awards

The agency targeted grants focused on diversity, equity and inclusion, as well as research on misinformation.

Without a new funding source, this will be the final year of the program –





Noam Ross • Following

Computational Disease Ecologist and Exec...

1mo •



We've gathered info on >1000 terminated **#NSF** grants at <https://grant-watch.us> . What have we learned? The terminations in the STEM Education directorate dwarf all the others. DOGE, RFK and co. are determined to undercut American science for a generation by killing science programs for K-12, research into education, undergraduate and graduate fellowships and research opportunities.

And what people bear the brunt of these cuts? Well, here's a word cloud of the most frequent terms in the titles and abstracts of terminated grants:



521

31 comments • 193 reposts

Noam Ross (rOpenSci) via LinkedIn

**Let's keep working together to
make open source more inclusive
for new contributors.**

Questions?

Learn more & connect with us →

