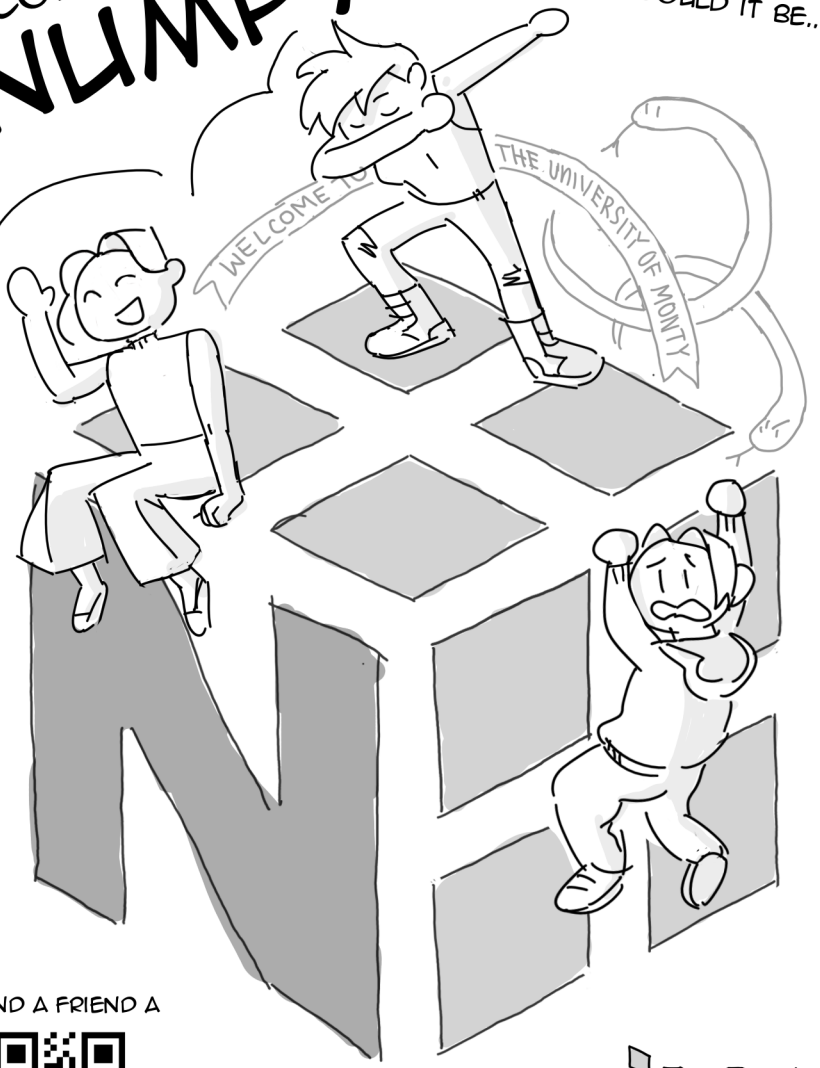
HOW TO CONTRIBUTE TO NUMPY

3 STUDENTS
2 MID-TERMS
1 OPEN SOURCE LIBRARY
HOW HARD COULD IT BE...?

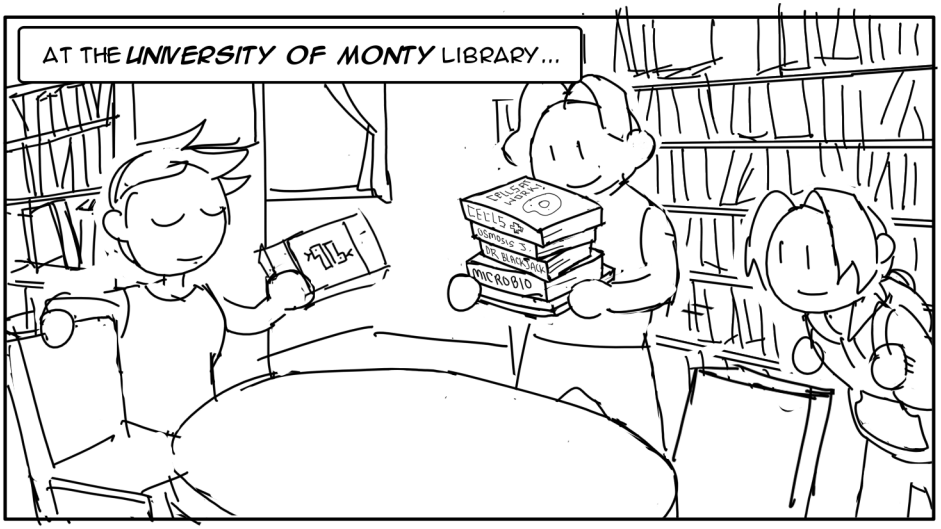


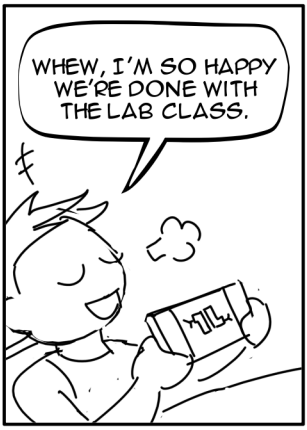
SEND A FRIEND A

DIGITAL VERSION OF THIS COMIC!

AUTHOR + ARTIST:
MARS LEE

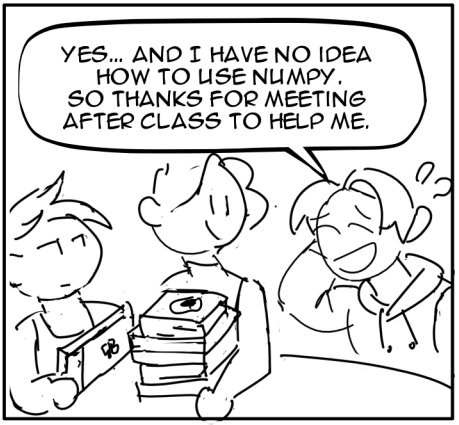
PyData NYC 2023 edition

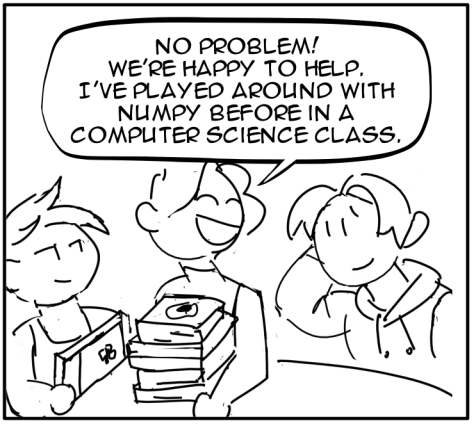

AT THE UNIVERSITY OF MONTY LIBRARY...
CELLS
MICROBIO

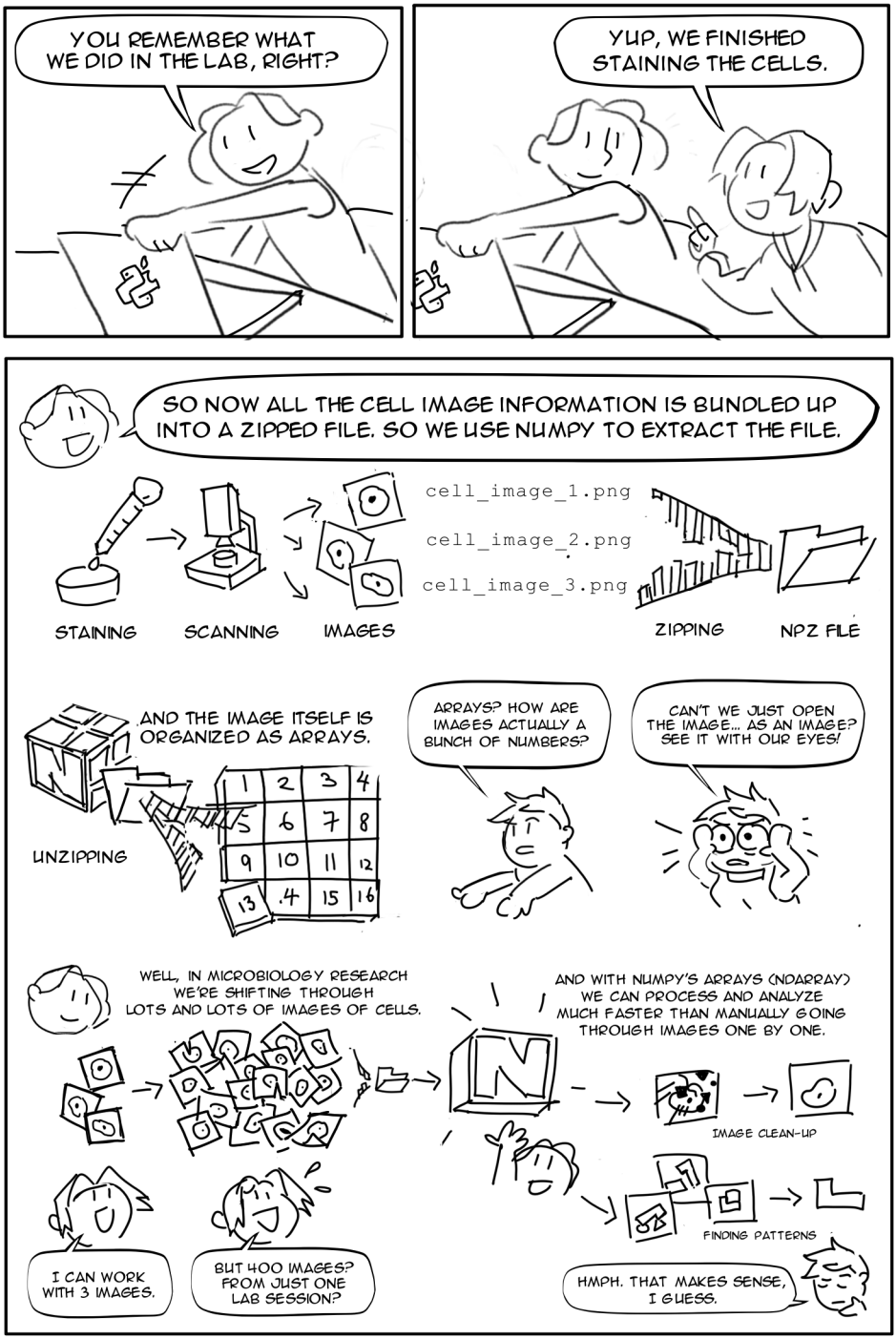

WHEW, I'M SO HAPPY WE'RE DONE WITH THE LAB CLASS.

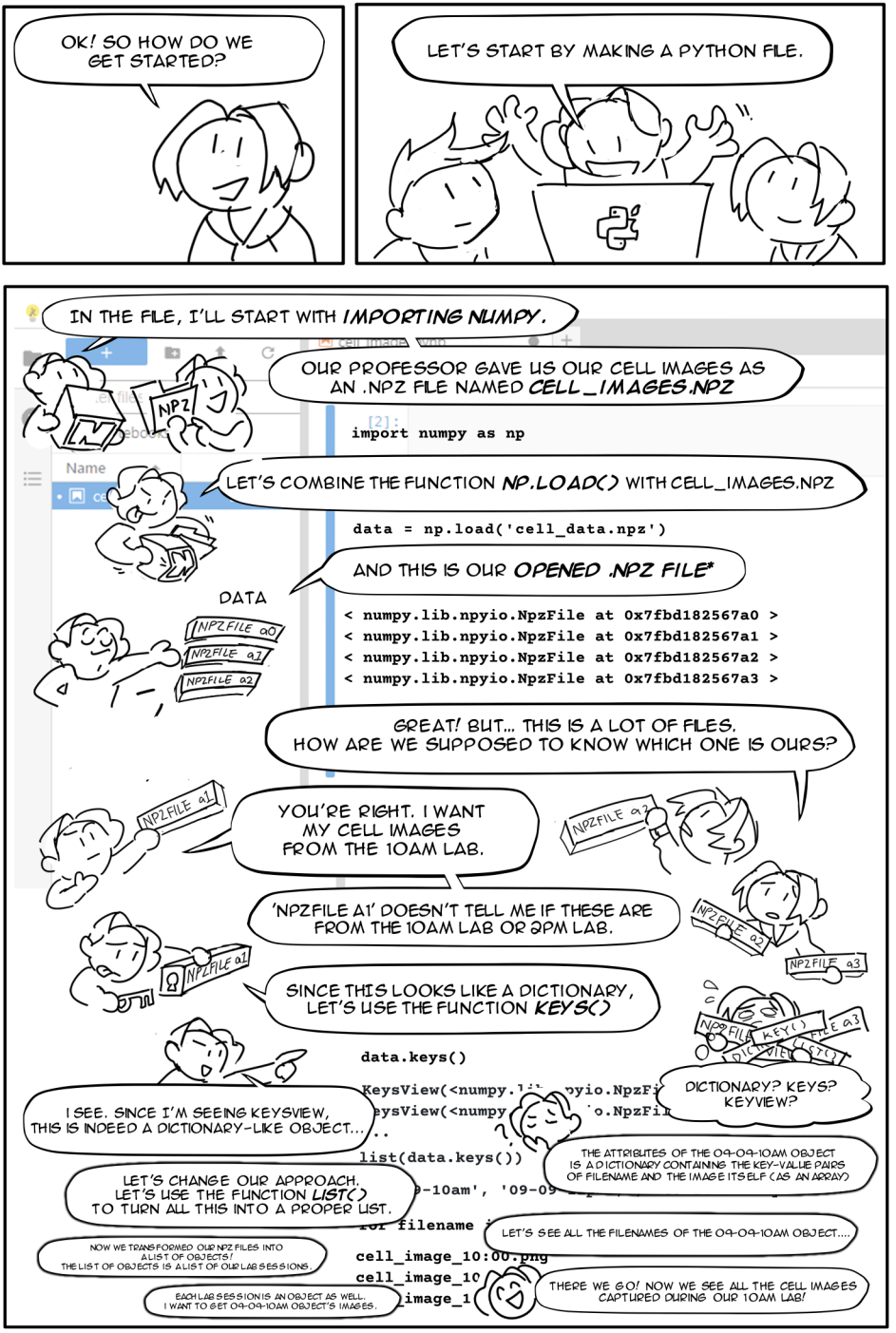
BUUUUT WE'RE NOT DONE YET.

WE NEED TO LOOK AT THE CELL IMAGE DATA, RIGHT? WITH NUMPY?


YES... AND I HAVE NO IDEA HOW TO USE NUMPY. SO THANKS FOR MEETING AFTER CLASS TO HELP ME.


NO PROBLEM! WE'RE HAPPY TO HELP. I'VE PLAYED AROUND WITH NUMPY BEFORE IN A COMPUTER SCIENCE CLASS.

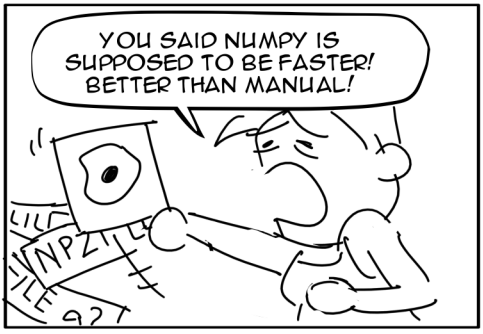

YOU REMEMBER WHAT WE DID IN THE LAB, RIGHT?
YUP, WE FINISHED STAINING THE CELLS.
SO NOW ALL THE CELL IMAGE INFORMATION IS BUNDLED UP INTO A ZIPPED FILE. SO WE USE NUMPY TO EXTRACT THE FILE.
cell_image_1.png
cell_image_2.png
cell_image_3.png
STAINING
SCANNING
IMAGES
ZIPPING
NPZ FILE
AND THE IMAGE ITSELF IS ORGANIZED AS ARRAYS.
UNZIPPING
1 2 3 4
5 6 7 8
9 10 11 12
13 14 15 16
ARRAYS? HOW ARE IMAGES ACTUALLY A BUNCH OF NUMBERS?
CAN'T WE JUST OPEN THE IMAGE... AS AN IMAGE? SEE IT WITH OUR EYES!
WELL, IN MICROBIOLOGY RESEARCH WE'RE SHIFTING THROUGH LOTS AND LOTS OF IMAGES OF CELLS.
AND WITH NUMPY'S ARRAYS (NDARRAY) WE CAN PROCESS AND ANALYZE MUCH FASTER THAN MANUALLY GOING THROUGH IMAGES ONE BY ONE.
IMAGE CLEAN-UP
FINDING PATTERNS
I CAN WORK WITH 3 IMAGES.
BUT 400 IMAGES? FROM JUST ONE LAB SESSION?
HMPH. THAT MAKES SENSE, I GUESS.

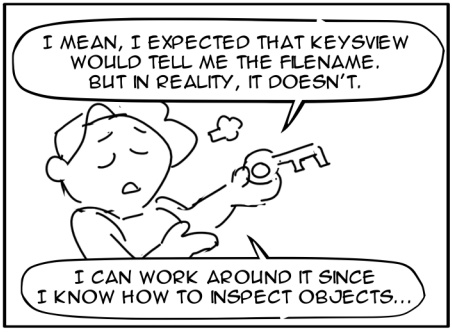


*BEFORE THE NUMPY. 1.25 RELEASE

File Edit View Run Kernel Tabs Settings Help
Name
Last Modified
cell_image.i...
2 minutes ago
WHAT-
THE-?!
NPZFILE a0
NPZFILE a2

WHY CAN'T YOU SEE THE FILENAME RIGHT THERE?
NPZFILE a0

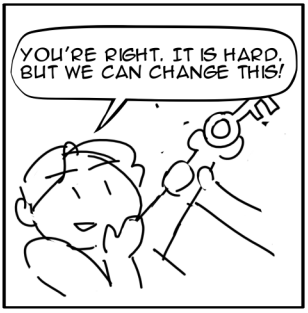

YOU SAID NUMPY IS SUPPOSED TO BE FASTER! BETTER THAN MANUAL!

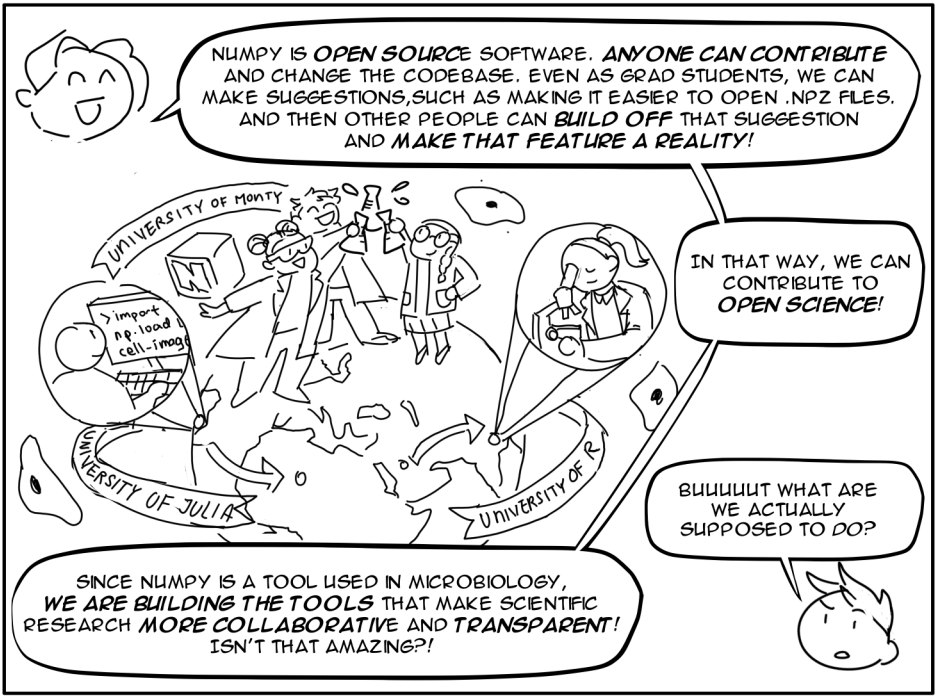

I MEAN, I EXPECTED THAT KEYSVIEW WOULD TELL ME THE FILENAME. BUT IN REALITY, IT DOESN'T.
I CAN WORK AROUND IT SINCE I KNOW HOW TO INSPECT OBJECTS...

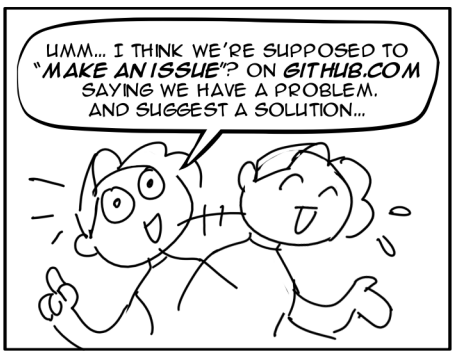
SO YOU NEED TO WORK AROUND ITS WONKINESS!

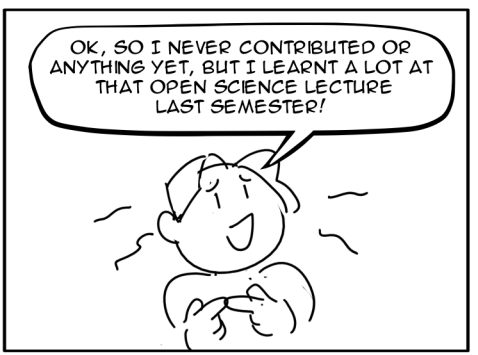
BUT, HEY, IT'S ALRIGHT, AS LONG AS IT WORKS
NPZFILE a2
NPZFILE a1

I DON'T THINK WE SHOULD ACCEPT 'AS LONG AS IT WORKS' IT MAKES OUR LIVES HARDER!


YOU'RE RIGHT. IT IS HARD, BUT WE CAN CHANGE THIS!

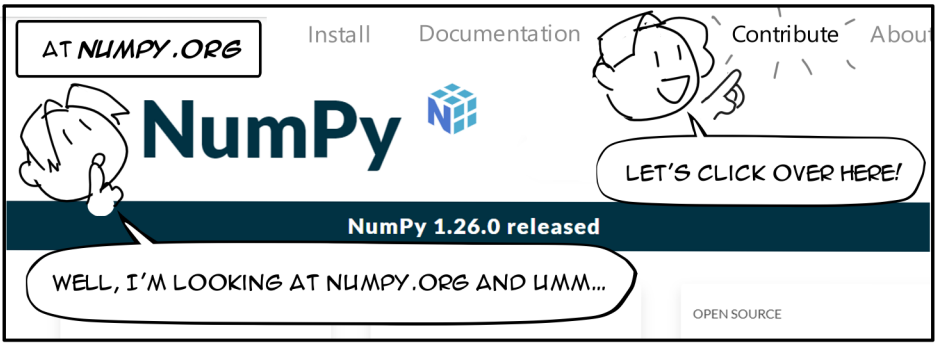

NUMPY IS OPEN SOURCE SOFTWARE. ANYONE CAN CONTRIBUTE AND CHANGE THE CODEBASE. EVEN AS GRAD STUDENTS, WE CAN MAKE SUGGESTIONS,SUCH AS MAKING IT EASIER TO OPEN .NPZ FILES. AND THEN OTHER PEOPLE CAN BUILD OFF THAT SUGGESTION AND MAKE THAT FEATURE A REALITY!
UNIVERSITY OF MONTY
>>import
np.load
cell.imag
UNIVERSITY OF JULIA
UNIVERSITY OF R
IN THAT WAY, WE CAN CONTRIBUTE TO OPEN SCIENCE!
BUUUUUT WHAT ARE WE ACTUALLY SUPPOSED TO DO?
SINCE NUMPY IS A TOOL USED IN MICROBIOLOGY, WE ARE BUILDING THE TOOLS THAT MAKE SCIENTIFIC RESEARCH MORE COLLABORATIVE AND TRANSPARENT! ISN'T THAT AMAZING?!


UMM... I THINK WE'RE SUPPOSED TO "MAKE AN ISSUE"? ON GITHUB.COM SAYING WE HAVE A PROBLEM. AND SUGGEST A SOLUTION...


OK, SO I NEVER CONTRIBUTED OR ANYTHING YET, BUT I LEARNT A LOT AT THAT OPEN SCIENCE LECTURE LAST SEMESTER!

I HAVE A GITHUB ACCOUNT. WE CAN TRY IT WITH MINE!

GREAT! LET'S LOOK AT NUMPY.ORG TO FIND THEIR GITHUB PAGE.


AT NUMPY.ORG
Install
Documentation
Contribute
About
NumPy
LET'S CLICK OVER HERE!
NumPy 1.26.0 released
WELL, I'M LOOKING AT NUMPY.ORG AND UMM...
OPEN SOURCE

CONTRIBUTE TO NUMPY
NO, I'M PRETTY SURE WE CAN START WITH GITHUB. LET'S CLICK HERE.
The NumPy project welcomes your expertise and enthusiasm! Your choice
below
many areas where we need your help.
here to start or how your skills fit in, reach out! You can ask on the mailing list or
vant issue).
Github
Those are
but if you prefer to talk privately, contact ou
py-team@googlegroups.com for an invite,
THIS LOOKS COMPLICATED. A MAILING LIST, SLACK, COMMUNITY CALLS? TOO MUCH!
We also
announced on the mailing list. You are very welcome to join. If

numpy
THERE WE GO! NOW WE'RE ON NUMPY'S GITHUB PAGE, WITH A LIST OF ISSUES.
Code
Issues 2k
New Issue
Author
Milestones
Assignee
Sort
ay.reshape shape invalid keyword argument
04 - Documentation
#24942 opened 3 hours ago by enains
ENH: can we have musl-aarch64 prebuilt binary as well?
component: distribution
#24934 opened 2 days ago by tuananh
DOC: NumPy Logo SVG files rendered in dark by Figma
04 - Documentation
#24933 opened 3 days ago by iaminebriki
LET'S CREATE A NEW ISSUE HERE. WHAT WE WANT IS A FEATURE REQUEST.

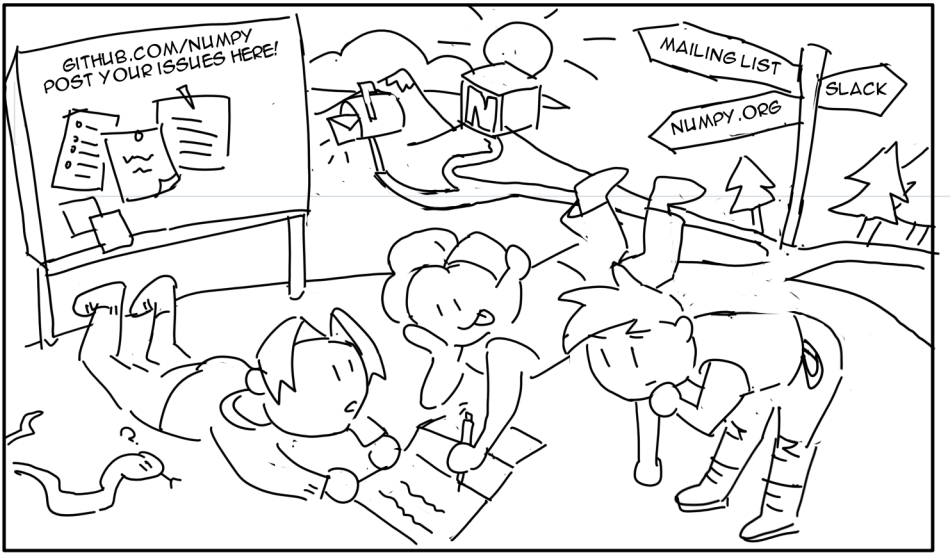
Issue: Feature request
Proposed new feature or change: *
Submit New Issue
LET'S WRITE AN ISSUE.

Issue: Feature request

Show filenames in npz archive?

Proposed new feature or change: *

Hi, we're microbiology students using NumPy to look at our cell images



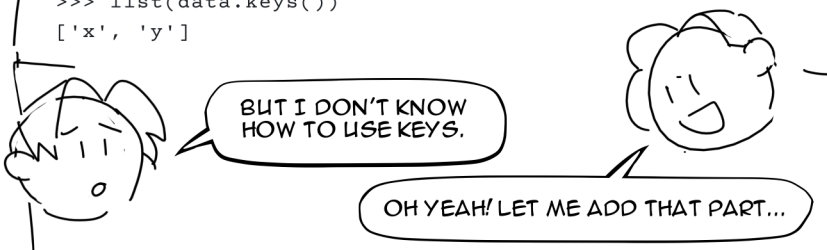
PROBLEM: We found it difficult to quickly see the filename in an npz file.

Example code:

```
>>> data = np.load("example.npz")
```

I expected that KeysView would tell me the filename. But it doesn't.

```
>>> list(data.keys())
['x', 'y']
```

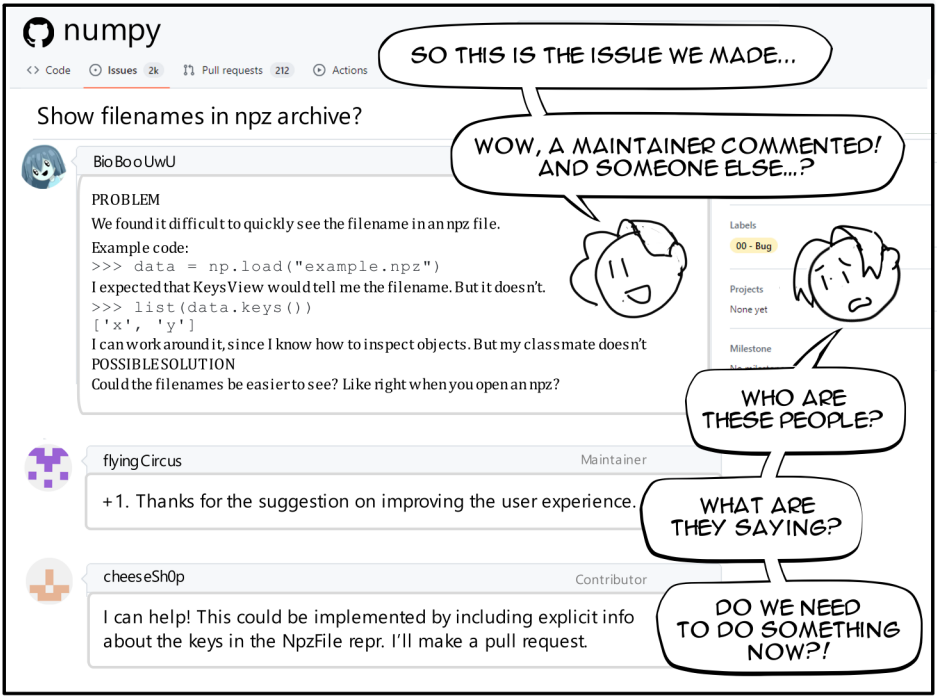


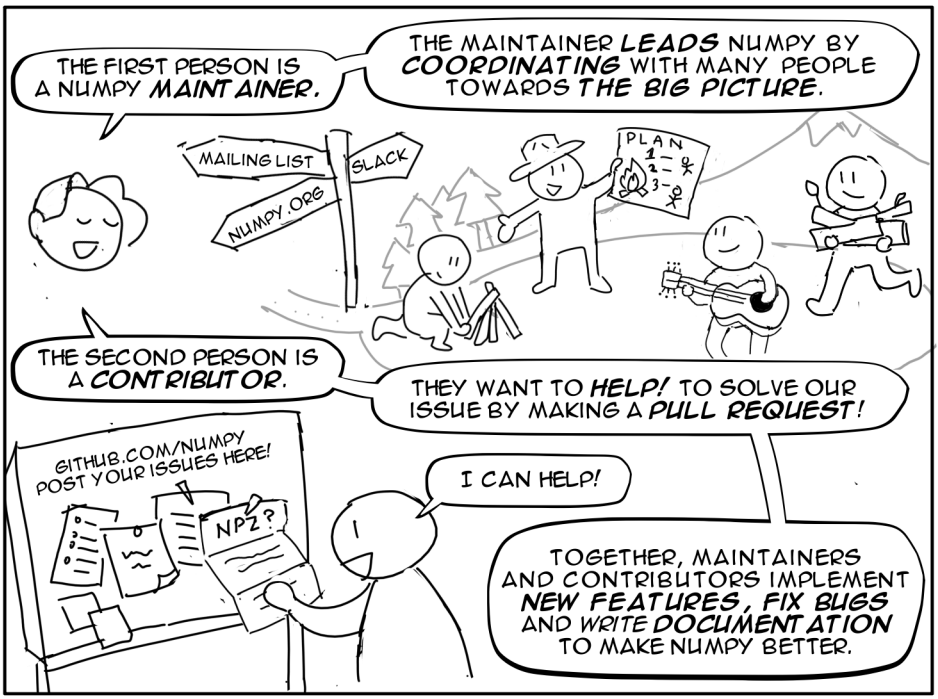
I can work around it, since I know how to inspect objects.

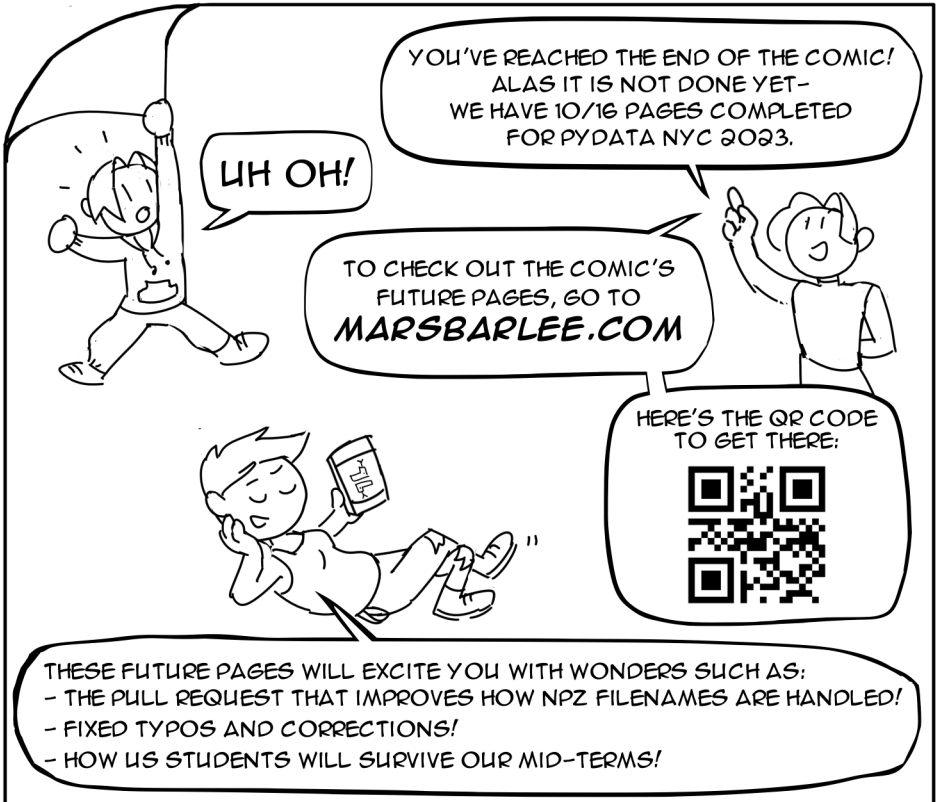
But my classmate doesn't.

NOW TELL THEM TO SOLVE IT.
I DON'T THINK WE SHOULD BE SO DEMANDING!
HOW ABOUT WE SUGGEST A POSSIBLE SOLUTION?
POSSIBLE SOLUTION
Could the filenames be easier to see? Like right when you open an npz?
SHOULD I BE MORE SPECIFIC? I DONT KNOW HOW TO WRITE THE CODE FOR A SOLUTION...
BUT HOPEFULLY SOMEONE WILL?
YOINK!
GITHUB.COM/NUMPY POST YOUR ISSUES HERE!
THUNK
NPZ?
WOO! SUBMITTED! INTO THE INTERNET!
NPZ

AFTER ALL THAT WORK, I NEED A BREAK.
B-BUT WE DIDN'T FINISH OUR ASSIGNMENT!
WE CAN STILL USE NUMPY, IT'S JUST ... INCONVENIENT.
WELL, I HAVE GITHUB NOTIFICATIONS ON.
SO DON'T WORRY, WE'LL HEAR BACK.
SOME TIME LATER...
OH, SOMEONE RESPONDED!!
BAM-
-WHAM-
AGHH. FINE! LET'S TAKE A LOOK.


numpy
Code
Issues 2k
Pull requests 212
Actions
SO THIS IS THE ISSUE WE MADE...
Show filenames in npz archive?
WOW, A MAINTAINER COMMENTED! AND SOMEONE ELSE...?
BioBooUwU
PROBLEM
We found it difficult to quickly see the filename in an npz file.
Example code:
>>> data = np.load("example.npz")
I expected that KeysView would tell me the filename. But it doesn't.
>>> list(data.keys())
['x', 'y']
I can work around it, since I know how to inspect objects. But my classmate doesn't
POSSIBLE SOLUTION
Could the filenames be easier to see? Like right when you open an npz?
Labels
00 - Bug
Projects
None yet
Milestone
WHO ARE THESE PEOPLE?
flying Circus
Maintainer
+1. Thanks for the suggestion on improving the user experience.
WHAT ARE THEY SAYING?
cheeseSh0p
Contributor
I can help! This could be implemented by including explicit info about the keys in the NpzFile repr. I'll make a pull request.
DO WE NEED TO DO SOMETHING NOW?!


THE FIRST PERSON IS A NUMPY MAINTAINER.
THE MAINTAINER LEADS NUMPY BY COORDINATING WITH MANY PEOPLE TOWARDS THE BIG PICTURE.
MAILING LIST
SLACK
NUMPY.ORG
PLAN
THE SECOND PERSON IS A CONTRIBUTOR.
THEY WANT TO HELP! TO SOLVE OUR ISSUE BY MAKING A PULL REQUEST!
GITHUB.COM/NUMPY POST YOUR ISSUES HERE!
NPZ?
I CAN HELP!
TOGETHER, MAINTAINERS AND CONTRIBUTORS IMPLEMENT NEW FEATURES, FIX BUGS AND WRITE DOCUMENTATION TO MAKE NUMPY BETTER.



THANK YOU:

- GOOGLE SEASON OF DOCS, QUANSIGHT AND NUMFOCUS FOR THE GRANT THAT KICKSTARTED THESE COMICS
- MUKULIKA PAHARI AND ROSS BARNOWSKI FOR BEING AWESOME PROJECT MENTORS
- THE NUMPY COMMUNITY FOR YOUR CONTINUED SUPPORT

SUBSCIRBE TO THE MARS COMIC UNIVERSE

@MARSBARLEE

LIBREPUNK.CLUB/@MARSBARLEE

@MARSBARLEE3

FOR MORE COMICS ON OPEN SOURCE AND HACKERSPACE SHENANIGANS!

LINKEDIN.COM/IN/MARS-LEE/

EGREGIOUS CAMEO OF THE ARTIST, MARS