HPC Carpentry

An Overview of HPC Carpentry's Activities

Jannetta Steyn, Newcastle University, UK

Toby Hodges, Andrew Reid, Annajiat Alim Rasel, Benson Muite, Trevor Keller, Wirawan Purwanto

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HPC means we have choices

1. **H**ardwood
2. **P**lywood
3. **C**hip board

https://commons.wikimedia.org/wiki/File:S1,_S2,_S3_(3542257521).jpg

https://commons.wikimedia.org/wiki/File:Spruce_plywood.JPG

https://media.wickes.co.uk/is/image/wickes/N0705_164516_00

1. HPC could potentially stand for hardwood, plywood and chip board

But that has nothing to do with anything ...

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HPC CARPENTRY

But that has nothing to do with anything ...

1. Hardwood
2. Plywood
3. Chip board

1. But, this type of HPC actually has nothing to do with what I'm about to tell you but I thought I'd mention it anyway.

Overview

1. What is The Carpentries
2. A Very Brief History of The Carpentries
3. Where does HPC Carpentry fit?
4. Current Status
5. Roadmap
6. The mini version
7. Comms Channels

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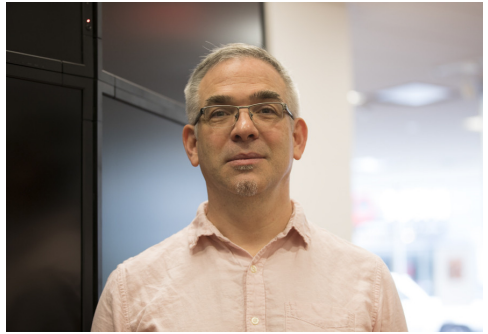
What we will look at is what The Carpentries is about and how it came into existence. Most of you are probably quite familiar with it anyway so it will be very short. We'll then look at what HPC Carpentry is and how that came about. What the current status of the HPC Carpentries is and what our future plans are. I wouldn't be myself if I didn't squeeze a bit of the miniHPC in here, so I'll quickly mention that and then I'll leave you with ways to get into contact us so that you too can join us in brining HPC Carpentries to researchers.

A Very Brief History of The Carpentries

- It all started with this guy –>
- … in 1998



Dr Greg Wilson
https://carleton.ca/scs/?p=14196

CARPENTRY

It all started back in 1998 with Greg Wilson. I was watching a YouTube video of a talk he gave in 2014 at PyCon. And I don't think I could summarise it better than this quote from that talk

This is what Greg said about Software Carpentries

We are lab skills for scientific computing. This project started because I was working with physicists and astronomers using first generation and parallel computers. And they would come into my office with their 50,000 lines of Fortran and ask me to make it a zillion times faster. And they had never heard of version control and weren't really sure why they should be writing functions because nobody every taught them. And it is unfair to look down on people if they are not doing things right if you have never shown them how.

https://www.youtube.com/watch?v=FtKO619O5g0

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Where does HPC Carpentry fit?

1. Knowing about Git and functions does not quite solve all problems
2. As with SC, researchers are amenable with using HPC but the curriculum doesn't prepare them for running things on a cluster. We can fix this using Carpentry style pedagogy.

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1. So once you write using functions and your code is in GitHub, you try running it on an HPC and you might find it runs a bit faster because it just so happens that the login node has a better spec than your average laptop or desktop. But people start yelling at you for running stuff on the login node and you don't know what the problem is because you've never heard about the Slurm scheduler thing and you neither does MPI sound familiar
2. Using the Carpentries' style and pedagogy we HPC Carpentry address this problem

How did it all begin

- Earliest commit 2013
- Peter Steinbach blog post (2017) - HPC in a day
- CarpentryCon 2018, 2020, 2022
- Super Computing BoF 17, 18, 19, 21

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1. The earliest commit I could find in the hpc-carpentry organisation was 2013. I watched a recording of a presentation given by Andrew Reid at SIGHPC about a year ago to get an idea of the history of HPC Carpentry and these were some of the events that Andrew mentioned that were significant in the spread of the word of HPC Carpentry, by talking to people, running workshops and getting feedback.

Where are we now?

1. We are doing things In the Carpentries Way
   - two day setting
   - get feedback
   - students type along with instructors
2. two main takeaways:
   - muscle memory
   - vocabulary
3. not experts after two days but:
   - know what answer looks like
   - know how to find answers

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Comms Channels

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Resources

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- Andrew Reid's talk at SIGHPC 2024
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- Peter Steinbach's blog post, HPC in a day?
  https://carpentries.org/blog/2017/06/hpccarpentry

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