# Enabling Open Science Through Research Code

## *Episode 1: Conversations with Researchers Who Code*

### Session information

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| **Webpage** | https://rsse.africa/events-rsse-africa/2024-10-10/ |
| **Date** | 10 October 2024 |
| **Time** | 08:30 - 10:00 am UTC (your time zone) |
| **Facilitators** | Saranjeet Kaur Bhogal<br>Anelda van der Walt |
| **Co-facilitators** | Jyoti Bhogal<br>Mireille Grobbelaar |
| **Speakers** | Dr Biandri Joubert<br>Dr Gaurav Bhalerao<br>Mr Mahmoud Abdelrazek<br>Mr Prasad Sutar |
| **Zoom registration** | https://us06web.zoom.us/meeting/register/tZYpcOCrqDwoHtAwzpuTt4vg-32tM_Y2FQBb |

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## Schedule

| Time | Activity | Speakers |
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| 8:30 UTC | Giving everyone time to join | **Facilitator: Anelda** |
| 8:35 UTC | Welcome<br>Happy International RSE Day!<br>and introduction to facilitators | **Facilitator: Saranjeet** |
| 8:45 UTC | Open science and research software/systems | **Facilitator: Anelda** |
| 8:50 UTC | Introducing our speakers<br><br>*Tell us a bit about your background and your current role?*<br>○ *What did you study and where?*<br>○ *Do you have postgrad qualifications? In what area?*<br>○ *What is the title of your current role?*<br>○ *Give a one-sentence summary of what you do in this role* | **Facilitator: Saranjeet**<br><br>Dr Biandri Joubert<br>Dr Gaurav Bhalerao<br>Mr Mahmoud Abdelrazek<br>Mr Prasad Sutar |
| 9:10 UTC | Polls | **Facilitator: Anelda** |
| 9:15 UTC | Panel discussion<br>● *What does a typical workday look like for you?*<br>○ *How much time do you spend coding?*<br>○ *How many projects do you work on? How many people are on your team? Is the work collaborative?*<br>○ *Give some keywords that summarise the topics of your projects.* | **Facilitator: Saranjeet**<br>Dr Gaurav Bhalerao<br>Mr Mahmoud Abdelrazek |

| Time | Activity | Speakers |
|---|---|---|
| | ○ *Have you developed software that is used by others?*<br><br>● *Tell us more about the organisation where you work.*<br>  ○ *What is their primary objective?*<br>  ○ *How many people in your organisation are involved in research software development (a thumbsuck is okay)?*<br><br>● *Where do you get training and support?*<br>  ○ *Which communities of practice are you part of?*<br>  ○ *What training has had an impact on your current career?* | **Facilitator: Anelda**<br>Dr Biandri Joubert<br>Mr Prasad Sutar<br><br><br><br>**Facilitator: Saranjeet**<br>Dr Biandri Joubert<br>Dr Gaurav Bhalerao<br>Mr Mahmoud Abdelrazek<br>Mr Prasad Sutar |
| 9:45 UTC | Q&A | **Facilitator: Saranjeet** |
| 9:55 UTC | Wrap up and next steps | **Facilitator: Anelda** |

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## Resources and info from partners

### RSSE Africa

- Website: https://rsse.africa
- Sign up for our newsletter:
  https://talarify.us14.list-manage.com/subscribe?u=35d5db26d3b108b9ef9b9ac43&id=55e9f5a692
- Join our LinkedIn group, where you can also share information with the broader community: https://www.linkedin.com/groups/12903402/

### RSE Asia

- Website: https://rse-asia.github.io/RSE_Asia/
- For the latest news, events, activities, and opportunities, follow us on our LinkedIn page (https://www.linkedin.com/company/rse-asia-association/)
- To join the RSE Asia community, please fill out our short Community Membership Form (https://docs.google.com/forms/d/1XSxDaTJzcNyGeDYXyJNVg1TDCo7un18PLFNiK6_jL2g/edit)

### AREN

- Website: https://africanrn.org/
- Sign up:
  https://docs.google.com/forms/d/e/1FAIpQLSeeFkD5A4D9l6ncQWjKBiI-GqBOzL-JMe7Fx3ijUYEjHjDUoQ/viewform

### ReSA

- Website: https://www.researchsoft.org/
- Sign up for the newsletter: https://www.researchsoft.org/news/
- The Amsterdam Declaration on Funding Research Software Sustainability
  - Become a signatory: https://adore.software/sign/

## Questions for organisers, facilitators and/or speakers

- @All Speakers - What are the most significant pain points you had when learning to code? (As a scientist)
  - Understanding how the lower level abstractions impact the choices and performance of higher-level languages.
- @Gaurav Bhalerao - do you get requests like using a particular language/tool for programming or creating the data architecture?
  - Sometimes yes. If the end user is particular on using a specific programming language, and it is totally new to me, I inform them that I will need time to work on it
- @Biandri Joubert - do you ever feel siloed in your role, given that you are the only programmer in your group? If so, how do you work around it?
- Are there resources that are easy to learn coding for beginners?
  - Gaurav Bhalerao: Please take a look at Carpentries lessons which are very well planned: https://software-carpentry.org/lessons/
  - https://processingfoundation.org/ and specifically something like https://p5js.org/tutorials/
- What are the most significant pain points you had when learning to code?
- What is an embedded RSE?
  - An embedded RSE is an RSE within a specific department. Some RSE groups are institutional and serves the whole academic community, while others are situated within research groups or departments (i.e. embedded)
- I transitioned from a non-coding background to a master's in data science, where I'm now doing a lot more coding. And relating very much to what you are all sharing! Code that runs doesn't always mean it's statistically sound. For researchers who code, how do you stay up-to-date and balanced between coding and your core field? Coding often arises out of necessity and isn't as regulated, so how do you ensure you're applying both research and coding correctly?

## Shared resources from the session

- UNESCO Open Science: https://www.unesco.org/en/open-science?hub=686
  - Available in English, Spanish, French, Portuguese, and more
- Gruenpeter, M., Katz, D. S., Lamprecht, A.-L., Honeyman, T., Garijo, D., Struck, A., Niehues, A., Martinez, P. A., Castro, L. J., Rabemanantsoa, T., Chue Hong, N. P., Martinez-Ortiz, C., Sesink, L., Liffers, M., Fouilloux, A. C., Erdmann, C., Peroni, S.,

Martinez Lavanchy, P., Todorov, I., & Sinha, M. (2021). Defining Research Software: a controversial discussion (Version 1). Zenodo. https://doi.org/10.5281/zenodo.5504016

- https://carpentries.org/
- Webinar: live online session form the AfircArXiv Open Science webinar series: https://info-africarxiv.ubuntunet.net/open-science-webinar-series/
- BTW, you can also "publish" code and algorithms on repositories such as AfricArXiv: https://africarxiv.ubuntunet.net/ and make it citable.
  - would this count as a peer reviewed output?
  - Africarxiv is a preprint server - not peer reviewed. But Journal of Open Source Software https://joss.theoj.org/ is peer reviewed
  - AND accredited in South Africa!
  - Also see https://openresearchsoftware.metajnl.com/
- https://bioperl.org/articles/How_Perl_saved_human_genome.html
- More about carpentries: https://carpentries.org/index.html
- https://we-are-ols.org/
- https://rladies.org/
- https://quarto.org/
- Another accredited journal specifically for what is called "data papers" is The Journal of Open Humanities Data (https://openhumanitiesdata.metajnl.com/)
- For those learning to code this may be a good resource https://www.archer2.ac.uk/training/materials/. It contains recordings and training material from past courses offered to researchers relating to coding.
- https://en.wikipedia.org/wiki/Spaghetti_code
- https://en.wikipedia.org/wiki/Dunning%E2%80%93Kruger_effect
- https://galaxyproject.org
- https://www.youtube.com/@StatisticsGlobe
- https://developers.google.com/community
- https://www.youtube.com/@RLadiesGlobal
- https://www.deeplearning.ai/
- In GitHub repositories of open-source projects, look at the good-first-issue
- I love the Carpentries' "helper" model - it is also great for involving people in a workshop and helping them overcome associated anxiety

- Resources I found throughout my journey:
  - Basics/Researcher friendly coding:https://milliams.com/, https://chryswoods.com/main/courses.html, https://infyspringboard.us.onwingspan.com/web/en/login
- Python from 3.10 onwards has easier to read error messages which is great
- Coding practices intensive:
- Episode 2 registration link: https://us06web.zoom.us/meeting/register/tZcpcu-ppjstGNJwEt1aKRjR6r2aC7Q4qE9Y#/registration