

CAB newsletter 13 February 2023

You are receiving this as a member of the Centre for Applied Bioinformatics (CAB)

Not yet joined CAB? Well if you are receiving this you already have joined, but if you know anyone who would like to join, then please forward this message and they can now sign up using a simple web form from the members page at <https://www.appliedbioinformatics.com.au/Members.php>

News:

Welcome back to a new year at CAB and we hope everyone had a wonderful break. Below I have listed some interesting papers that have been sent to me for promotion. If you have a recent publication you would like to promote, please provide details as in the format below. There are several conferences and training courses on offer to build your network and extend your capability. We also have an increasing number of students joining the UWA Master of Bioinformatics, many of whom will be seeking projects. If you are interested in hosting a student project, please contact dave.edwards@uwa.edu.au

Interesting papers:

Title: On a greedy approach for genome scaffolding

Summary: An algorithm using polynomial-time approximation was used to aid scaffolding and place contigs by determining the relative position and orientation. The mathematics is interesting, and the experimental results seem solid from what I understand.

Link: <https://almob.biomedcentral.com/articles/10.1186/s13015-022-00223-x#Abs1>

Title: Unbiased pangenome graphs

Summary: A new algorithm, seqwish, has been developed to create pangenome graphs without using single references, specific ordering of genomes or de Bruijn models. It uses tree-based representations of alignments. It's an interesting method, and I like the discussion where it addresses the problems of pangenome graphs succinctly.

Link: <https://academic.oup.com/bioinformatics/article/39/1/btac743/6854971>

Title: An interaction regression model for crop yield prediction

Summary: Neat machine learning model using combinatorial optimisation to identify and quantify the most important features and their interactions for crop yield prediction. To ensure robustness in model explainability, they only maintain features/interactions considered relevant across multiple years and regions in the dataset. Code is available on a GitHub repository linked in the paper, although it doesn't have much documentation attached.

Link: <https://doi.org/10.1038/s41598-021-97221-7>

Please send information on interesting papers that I can promote in the newsletter/CAB twitter feed.

Conferences and Presentations:

EMBL-EBI are running a **webinar series about plants from a data science perspective**. This series will comprise a wide range of topics from exploring genomes, genotype-phenotype studies, phylogenetics, spatial gene expression, plant breeding, microbial ecosystem to mathematical modelling, machine learning, and data management in agriculture and plant sciences. These webinars will start on Wednesday 1 March and run until 10 May 2023. Here is the link to look at all the webinars from this series - [Plants: a data sciences perspective](#)

EMBL Symposium: **The non-coding genome**
11 – 14 October 2023, EMBL Heidelberg and Virtual
For more information, click: [The non-coding genome](#)

NCI are co-organising the **Australasian Leadership Computing Symposium** once again in 2023. ALCS will be a unique interdisciplinary gathering for our computational science community in Canberra on 14-16 June. For more information, click: [Australasian Leadership Computing Symposium](#)

Infrastructure:

How to apply for Nimbus servers:

Would you like some free Linux servers with up to 16 cores and 64 GB RAM through Pawsey? Dr Sarah Beecroft has helpfully provided a 'how to apply' video available at <https://www.youtube.com/watch?v=mpFQC5sXSHQ>. Users have full access to these machines and we have prepared an image that supports many standard bioinformatics tasks that can run on this scale of machine.

Training:

Pawsey are offering a **Slurm training course targeted at HPC users** who are at an intermediate (or higher) level. Register here: <https://pawsey.org.au/event/slurm-advanced-training-21-24-february-2023/>

Bioconductor-organized Carpentries instructor training application.

Become a certified Carpentries instructor and contribute to the global Bioconductor teaching community. Improve your skills, get community support and uplift your peers through great training! See: https://docs.google.com/forms/d/e/1FAIpQLSen6S6Zd0_gdVfXpSgZ-QSnIhTskFF4VXBfQI1bt9nVsYr8qQ/viewform

EMBL are offering a **Scientific Visitor Programme** - <https://www.embl.org/about/info/scientific-visitor-programme/> The person to contact would be Claudia Martin

(<https://www.embl.org/people/person/claudia-martin/>) who is the Scientific Visitor Programme Manager.

EMBO Practical Course:

[Quantitative proteomics: strategies and tools to probe biology](#)

11 – 16 June 2023, EMBL Heidelberg

EMBL Course:

[Deep learning for image analysis](#)

5 – 9 June 2023, EMBL Heidelberg

PhD scholarships:

Two fully funded PhD scholarships are available in the group of Rajeev Varshney. Interested candidates are encouraged to send their research interest and CV to Prof Rajeev Varshney, at rajeev.varshney@murdoch.edu.au

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