

THE RESEARCH PROJECT

This research will be done within the 'EucXylo' Research Chair (<http://blogs.sun.ac.za/eucxylo/>), a program funded mainly by the Hans Merensky Foundation (HMF), based at the Department of Forest & Wood Science at Stellenbosch University. The program aims to understand and model processes of plant-level ecophysiology and wood formation (xylogenesis) in eucalypts.

THE ROLE

We are seeking a Research Software Engineer or similarly skilled candidate with experience in open source research software development, particularly in web-based frameworks, to work alongside a world-leading research team in an exciting new research project. The Fellowship entails the development of a simulation framework incorporating several existing/published models of wood formation in concert with/linked to various tree and forest process-based models. It could include or develop from other simulation frameworks (e.g., APSIM¹) if that is feasible. The simulation framework must allow the incorporation of new ideas in a flexible way, building on the findings of student projects and other published research as it emerges. The work will have a particular focus on modelling growth and wood formation in eucalypts and incorporating processes at multiple scales (sub-cellular to environment).

DUTIES

Your duties would be to:

- Develop an open-access, online system for simulating tree physiological processes and xylem formation using appropriate language/s for prototyping, optimization and final implementation.
- Integrate various simulation modules with the software system.
- If appropriate, to develop an installer for the software system.
- Develop an interactive web-based manual for the software system.
- Publish results in peer reviewed journals and online depositories as applicable.
- The incumbent will be expected to assist with the supervision of MSc and PhD students.

REQUIREMENTS AND QUALIFICATIONS

- PhD obtained within the last five years in computer science, applied mathematics, computational biology or a related field.
- Up-to-date knowledge in scientific data collection, data management, and data analysis concepts.
- Advanced programming skills in one or more appropriate languages (JAVA/Python/C++ or others depending on how the software is developed).
- Familiarity with Research Software Engineering practices aimed at producing reliable and maintainable software (collaborative version control, testing, modularity, etc.).
- Excellent communication and interpersonal skills to be able to interact effectively with a diverse group of scientists; good written and verbal communication skills in English are essential.
- Ability to function in a multicultural and multilingual environment, ability to work well both independently and as part of a team and take initiative.

¹ <https://www.apsim.info/>

RECOMMENDATIONS

- Biological knowledge and background, particularly plant biology.
- Confident to explore code written in multiple languages (e.g. R, Fortran, Pascal), if translating models to a common language is required.

LOCATION

The incumbent will ideally be based full time at the Department of Forest & Wood Science (DFWS) at Stellenbosch University (SU) but a hybrid arrangement (part-time onsite, part-time remote) can also be considered. SU celebrated its centenary in 2018, and is widely acknowledged as one of Africa's premier tertiary education and research institutions (visit www.sun.ac.za for more information). Staff and students at the University enjoy a relaxed and pleasant lifestyle, close to mountains and sea. Attracting students from around the world, and particularly Africa, and with strong international linkages and collaborations, the DFWS prides itself on research excellence with a diverse, friendly culture.

CONTRACT DURATION AND COMMENCEMENT

The research stipend is granted for a one-year period which can be extended to a second year, performance dependent. The stipend is R340,000 per annum.

Please note that post-doctoral fellows are not appointed as employees in South Africa and their fellowships are awarded tax free, but they are not eligible for standard employee benefits. For more information about post-doctoral fellowships at Stellenbosch visit <http://www.sun.ac.za/english/research-innovation/Research-Development/postdocs>.

This position is based at Stellenbosch campus with the option to negotiate a flexible hybrid (part-time onsite/remote) arrangement.

Preferred commencement: **1 July 2022**

APPLICATION PROCEDURE

Application closing date: **30 April 2022 (or until position is filled)**

Please send by email to Dr. David Drew (drew@sun.ac.za) the following documents before the closing date:

1. A brief cover letter providing motivation for your application.
2. A brief essay describing a potential approach and structure that could be used to develop a framework of this nature.
3. Evidence for software development experience and/or involvement in open source projects
4. Current, comprehensive CV.
5. Copies of doctoral degree certificate (obtained within the last five years) and other relevant degree certificates and grades obtained.
6. Contact details of two referees AND please request these referees to forward confidential reports by the closing date to the same address.

Any questions about the position can be addressed to Dr. Drew at the same email address. For questions about visas and international relocation please contact Ms. Izel Rossouw (izel@sun.ac.za).

Applicants who have not received a response within 14 days of the closing date, please accept that your application has not been successful. Short-listed applicants will be contacted to arrange an interview. These candidates may be requested to provide additional information/submissions, and to undergo certain biometric/other tests.