



Dual PhD position: Seeing the Forest for the Trees: Stochastic Process Discovery

Organisations create value for customers by running business processes. The aim of process mining is to uncover how these processes actually work, as opposed to how process stakeholders think they work, such that they can be improved based on objective, factual insights. The field of process mining has long studied how to discover a process model from an event log. However, a process model shows what activities are executed in a process, but not how likely the activities are. Thus, efforts of analysts may go wasted on exceptional behaviour and noise.

In this PhD project, we aim to help analysts see the forest for the trees, by including information on the frequency of behaviour into process models. That is, we take process discovery a step further, by developing techniques for automated stochastic process discovery. The project involves developing algorithms to discover stochastic process models, designing scientific experiments to verify their working in real-life settings, and assist in applying stochastic process mining techniques in industry partners' settings.

What we ask & offer

The ideal candidate for this project (the sheep with 5 legs) has:

- A finished Master of Science in computer science, data science, statistics, mathematics or a closely related field, at which you were in the top of your class;
- An eagerness to become a data science researcher;
- Experience with programming;
- Affinity with process mining;
- Some teaching experience;
- Willingness to be based partially in Melbourne (Australia) and Aachen (Germany);
- Full-time availability.

For RWTH graduates, preferably, you have done your graduation project with the Business Process Management group or with the Process and Data Science chair.

It is the intention that the candidate obtains a PhD from RWTH and from the University of Melbourne. It is planned that the successful applicant will spend part of their time in Melbourne, Australia, and part in Aachen, Germany. RWTH offers initially a 1-year position (with a potential extension for 4 years in total), full-time for the time spent in Aachen, with a salary according to TV-L, EG 13. The successful candidate must apply and be admitted to the University of Melbourne PhD program. For the Melbourne component of the project, the student will receive a living allowance of AUD 34 400 per year pro rata (2023 full-time study rate).

About the groups

The Business Process Management: Foundations and Engineering group of RWTH is a new group in the Informatik i9 chair. The focus of the BPM group, led by Prof. Sander Leemans, is on the combination of data-based process analysis and the optimisation of processes in organisations. The candidate will be co-supervised by Artem Polyvyanyy, an Associate Professor at the School of Computing and Information Systems at the University of Melbourne, which is one of the top universities in Australia, and a world leader in research excellence.

How to apply

In an at-most 2-page application, motivate what triggers you to pursue this opportunity, and indicate your prior experience with process mining, including relevant courses and your marks. Please send your application to applications@bpm.rwth-aachen.de. Applications may close earlier when a suitable candidate has been found.