

Bachelor Project: Process Tree Alignments

Process mining aims to enable analysts to obtain insights about business processes running in organisations. Using these insights, the organisation can improve and optimise its processes. Conformance checking compares a model with an event log, to derive insights from their differences. For instance, to evaluate the quality of the model. Alignments is the state-of-the-art conformance-checking technique, however its computation is expensive.

A recent approach leverages the structuredness of process trees to speed up computations¹. In this project, you'll implement this approach in Rust and thoroughly evaluate it.

In this project, we will:

- Implement an existing process tree alignment technique in Rust;
- Apply the implementation to a variety of real-life event logs and evaluate its speed with respect to existing alignment techniques.

Pre-requisites

To apply for this project, you must demonstrably have experience with process mining. For instance, you have followed Business Process Modelling & Computation, Business Process Intelligence, Advanced Process Mining, or have taken your seminar in the BPM or PADS group.

¹A Dynamic Programming Approach for Alignments on Process Trees. Christopher Schwanen, Wied Pakusa, Wil van der Aalst. Process Mining Workshops 2024.

About the PADS chair

The Process and Data Science chair provides courses, seminars, and projects related to data science, process science, process mining, business process management, data mining, process discovery, conformance checking and simulation. Its research interests include workflow management, process mining, Petri nets, business process management, process modeling and process analysis.



About the BPM group

The Business Process Management: Foundations and Engineering group is a new group in the Informatik faculty. 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.

How to apply

In an at-most 0.5-page A4 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 s.leemans@bpm.rwth-aachen.de. The starting date is flexible, and applications close 1 July or once a suitable candidate has been found.