
# Bachelor Project: Stochastic BPMN Discovery

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. Stochastic process mining is a sub-field of process mining that takes the likelihood of behaviour into account. Given an event log, process discovery aims to find a process model that represents the event log well. A next step is to discover the frequencies of choices in the model to obtain a stochastic process model.

In this project, we will bring stochastic discovery to BPMN models. In particular, we aim to:

- Develop a standard (formalism) that covers elements such as the XOR split gateway, OR split gateway, and the event-based gateway, to extend the BPMN standard;
- Provide several examples of stochastic BPMN models and how probabilities can be annotated or, preferably, computed in a structured manner;
- Develop an algorithm to guesstimate the annotations from event logs.
- Implement the algorithm in Rust.

## About the BPM group

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

## Pre-requisites

To apply for this project, you must demonstrably have experience with process mining. For instance, you have followed Business Process Modelling & Computation, Introduction to Data Science, Business Process Intelligence or Advanced Process Mining. Preferably, you have done your seminar in the BPM or PADS groups.

## How to apply

In an at-most 1-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 applications@bpm.rwth-aachen.de. Applications close by 1 February 2025, or when a suitable candidate has been found.