



Master Project: Studying online browsing behaviour using process mining

In computational social science, we investigate social and socio-technical phenomena using digital behavioural data and computational methods.

In process mining, we aim to extract information from process executions recorded in IT systems to create a process model, such as a Petri net or a BPMN model. The discovered models provide insights into the processes, including key data, metrics or events that may have otherwise gone unnoticed.



In this project, we will apply process mining techniques to web tracking data (i.e., sequences of URLs and timestamps that indicate that a user has visited a website at a given point in time).

We will explore methods to classify different types of browsing sessions (e.g. sessions that involve AI service visits such as ChatGPT and those that do not involve such visits).

The student will select appropriate baseline classification algorithms that do not use any sequential information and compare their performance with process mining algorithms that can classify traces.

Pre-requisites

To apply for this project, you must have demonstrably have experience with process mining, or machine learning, or data mining in university courses.

About Gesis

gesis Leibniz Institute
for the Social Sciences

GESIS provides fundamental research-based services for the social sciences of supra-regional and international importance. Prof. Claudia Wagner is the chair for Applied Computational Social Sciences at RWTH Aachen and director of the Computational Social Science department of GESIS. Her research focuses on methodological challenges that arise when using digital behavioral data to study individual behavior, attitudes and group dynamics.

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 1-page A4 application, motivate what triggers you to pursue this opportunity, and indicate your prior experience with process mining, data mining and social science. Also include other relevant courses and an overview of your marks. Please send your application to applications@bpm.rwth-aachen.de. The starting date is foreseen in October 2024, and applications close 31 September or once a suitable candidate has been found.

Together with this master thesis, GESIS offers a student assistant position in the CSS department in Cologne (8-18 hours per week). Please indicate whether you would be also interested in this position. The successful candidate would work with web tracking data and support the development of data science infrastructure for this data.