

## Process Mining in Personalized Medicine

Process mining has been applied successfully in a variety of domains, e.g., production, banking, logistics, and many more. Besides others, its techniques are useful to discover actual business processes and make them accessible to multiple stakeholders like process owners and participants. This often leads to surprising insights showing that in many cases, the expected behavior may be very different from reality. Further process mining can uncover performance issues, the use of resources, and hidden costs. All of this is also of particular interest in healthcare processes.

The project will be conducted in cooperation with the clinic network Mount Sinai (MS). Located in the New York metropolitan area, Mount Sinai combines the Icahn School of Medicine at Mount Sinai, eight hospital campuses and 13 free-standing joint venture centers. As part of this cooperation, Mount Sinai provides a unique data set containing detailed personalized medical data of more than eight million patients and over 120 million encounters

This year's master project gives you the opportunity to work with real-life patient data. In a previous project, a tool was developed to transform data of patient cohorts into a process mining ready format, based on event logs. Using this tool, the focus on this semester's project will be analyzing similar patient groups based on their treatment paths through the MS Health System. Technically, we are interested in the different variations that a treatment process might cover. You will develop and apply clustering methods for patient flows and compare treatment processes across wards and departments.

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