

Master of Science – Biomedical Engineering
Thesis Proposal

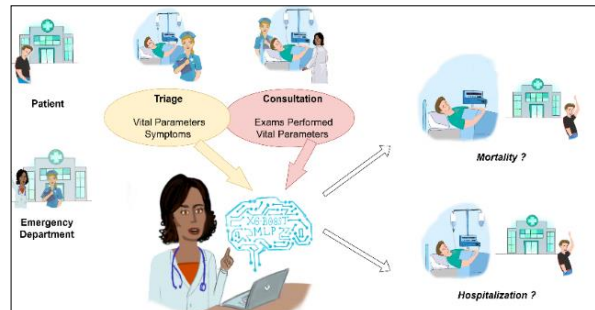
Impact of different types of missing values on outcome prediction in Emergency Medicine

The Department of Biomedical Engineering (DBE) and the Emergency Department (ED) of the University Hospital of Basel are currently developing prediction models for emergency patients. Missing values are a common issue in this field due to the nature of emergency medicine and have proved to be a relevant aspect when building the models so far.

The MIMIC dataset is a large, freely available database of deidentified health data that has been widely used for research in areas such as predictive modelling of disease trajectories, analysis of treatment patterns, and development of decision-support systems.

This thesis aims to evaluate different ways of dealing with missing values in the MIMIC dataset.

It starts with a literature search on what options for various type of missing values have been tested priorly. Then, prediction models that inherently process missing values should be compared to those which cannot process them. For these cases, different approaches of how to handle the missing input information should be compared, as well as their performance on different types of missing values shown.



Nature of the Thesis

Literature Review: 20%, Programming: 60%, Documentation: 20%

Specific Requirements

Good programming skills (Python) required.

Group Leader / Supervisor

Prof. Dr. Philippe Cattin, University of Basel, Center for medical Image Analysis and Navigation CIAN
Dr. med. Annette Mettler, University of Basel, Center for medical Image Analysis and Navigation CIAN

Collaborators

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