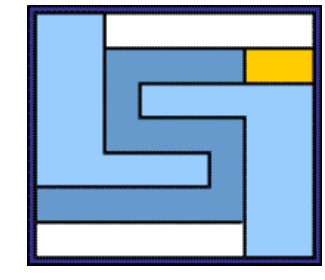


Graph Neural Networks-Based Models in a Generative Framework for Imputation of Clinical Time Series Data of ICU Patients

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What is the motivation?

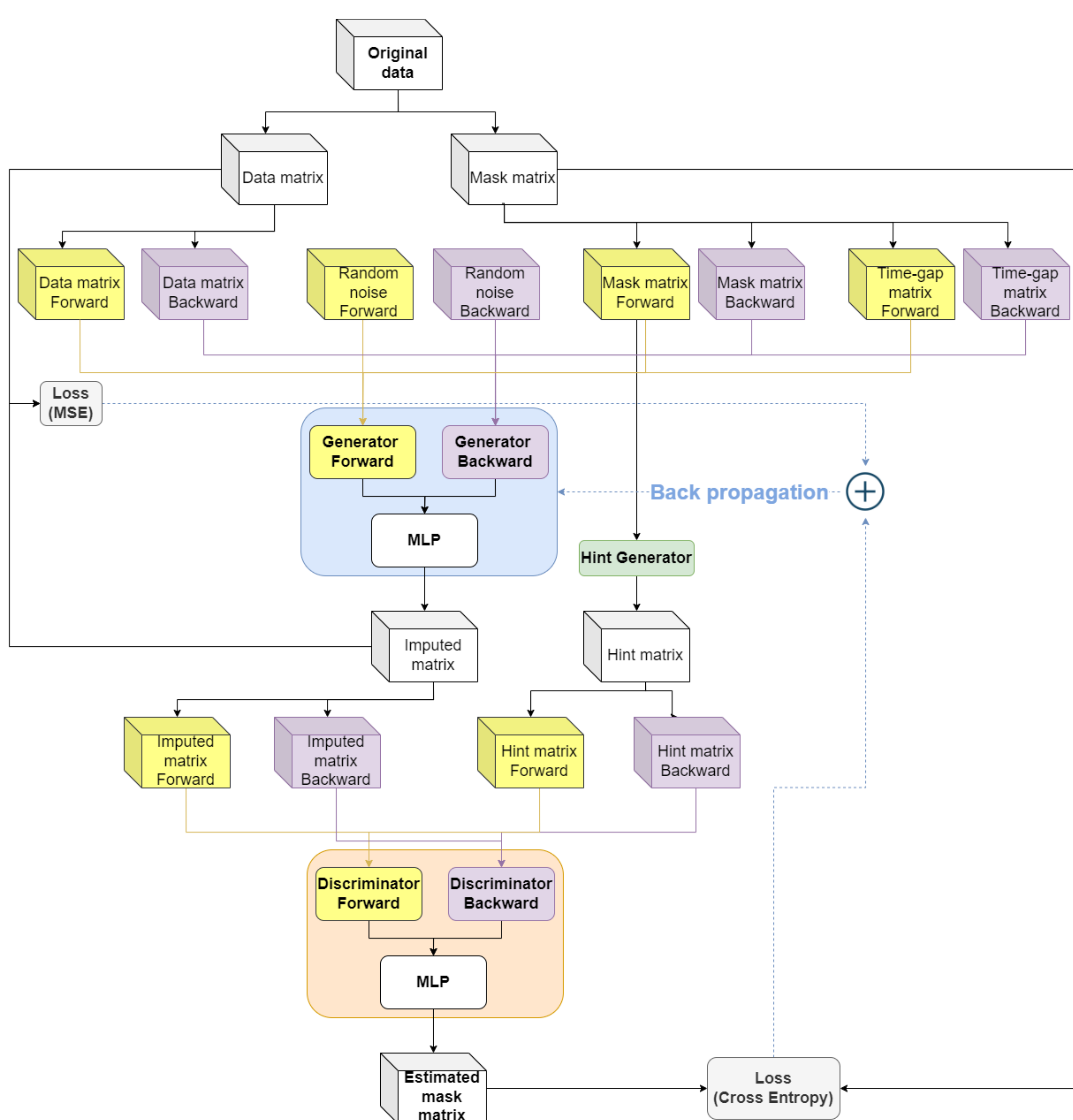
We want to **improve** the **imputation of time series**, thus **improving** the **application** of **machine learning** models to predict **sepsis** onset.

- **Solving** the problem of the **large number of missing values** in **clinical data**.
- **Facilitating** the **prediction task** of machine learning models.
- Try to **increase** the **prediction horizon** and the **reliability** of **predictions**.

What is Sepsis?

Sepsis is a **serious medical condition** caused by a **fulminant immune response** to an **infection**. It is a **difficult** disease to **diagnose** and **every minute** counts, as **the risk of death** increases as time passes after the onset of sepsis.

What do we propose?



Proof of concept

Imputation method	MSE
Mean imputation	0.0501 +- 0.0005
Zero imputation	0.2525 +- 0.0039
GAIN	0.0349 +- 0.0072
Forward Filling	0.0072 +- 0.0003
TG-GAIN	0.0021 +- 0.0002

How are the sepsis data we are testing?

Parameters	Values
Source	MIMIC-III Database
Number of patients	6181
Clinic variables	44
Negative cases	5618
Positive cases	570
Prevalence	9.22%

What preprocessing steps have been performed?

