**Predicting Mild Cognitive Impairment from Longitudinal Healthcare Data using Machine Learning**

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# **Abstract**

# **Introduction**

# **Materials and Methods**

## Data Set

## Data Pre-processing

**Table 1**. Age, sex, medication and diagnoses distributions in *S*. For diagnoses/medications, we provided the number of patients in each cohort who had at least one diagnoses/medications as the diagnose/medication shown in the first column

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Case | Control |  |
| **No of patients** | N(%) | N(%) |  |
| **Demographic** |  |  |  |
| Age | Avg (25%, 75%) | Avg (25%, 75%) |  |
| Female | N(%) | N(%) |  |
| Race | N(%) | N(%) |  |
| Asian | N(%) | N(%) |  |
| Black | N(%) | N(%) |  |
| Native American | N(%) | N(%) |  |
| Pacific Islander | N(%) | N(%) |  |
| White | N(%) | N(%) |  |
| Unknown | N(%) | N(%) |  |
| Other | N(%) | N(%) |  |
| **Diagnoses** |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Medications** |  |  |  |
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|  |  |  |  |
| **Procedure** |  |  |  |
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|  |  |  |  |

# **Experimental Results**

**Table 2.** Performance of OUD predictoin using MUPOD compared to RF, SVM, LSTM and original Transformer architecture.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Model | Acc. | Prec. | Rec. | F1-score | AUC |
| LR |  |  |  |  |  |
| RF |  |  |  |  |  |
| XGBoost |  |  |  |  |  |
| LSTM |  |  |  |  |  |

# **Conclusion**

# References