Model: Time Series Baseline
Layer: LSTM
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.87	.54	.91	.44

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.48	.93	.37

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.63	.65	.56

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.20	.92	.03

Model: Time Series Baseline
Layer: GRU
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.89	.57	.92	.44

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.51	.94	.40

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.63	.66	.54

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.20	.92	.04

Model: Multimodal Baseline
Layer: GRU
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.59	.92	.49

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.54	.94	.44

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.71	.64	.66	.56

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.22	.92	.06

Model: Multimodal Baseline
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.48

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.53	.94	.45

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.23	.92	.06

Model: Multimodal Baseline
Layer: GRU
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1

.88	.58	.92	.45

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.53	.94	.45

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.57

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.23	.92	.06

Model: Proposed CNN
Layer: GRU
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.47

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.45

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.53

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.22	.92	.03

Model: Proposed CNN
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.48

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.41

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.22	.92	.02

Model: Proposed CNN
Layer: GRU
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.91	.46

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.43

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.56

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.22	.92	.02

Ablations/Experiments

Ablation: Use LSTM in Proposed rather than GRU
Model: CNN
Layer: LSTM
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.91	.46

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.52	.94	.42

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.64	.66	.54

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.72	.21	.92	.02

Model: CNN
Layer: LSTM
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.56	.91	.45

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.43

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.63	.66	.51

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.21	.92	.01

Model: CNN
Layer: LSTM
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.56	.92	.43

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.50	.94	.42

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.67	.58

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.72	.21	.92	.006

Ablation: Remove Final Conv1D Layer from proposed
Model: CNN
Layer: GRU
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.45

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.86	.52	.94	.44

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.63	.66	.53

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.22	.92	.07

Model: CNN
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.56	.91	.46

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.52	.94	.43

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.63	.66	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.71	.22	.92	.01

Model: CNN
Layer: GRU
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.57	.91	.47

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.51	.94	.43

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.63	.67	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.21	.92	.01

Ablation: Remove Final Two Conv1D Layers from proposed
Model: CNN
Layer: GRU
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.57	.92	.43

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.45

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.54

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.22	.92	.02

Model: CNN
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.57	.92	.46

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.48

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.63	.66	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.72	.21	.92	.08

Model: CNN
Layer: GRU
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.57	.91	.45

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.52	.94	.44

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.69	.62	.66	.55

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.20	.92	.04

Ablation: Change filter size on proposed model from 32 to 64
Model: CNN
Layer: GRU
Embedding: word2vec
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.44

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.52	.94	.43

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.67	.56

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.75	.23	.92	.005

Model: CNN
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.57	.92	.44

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.52	.94	.46

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.67	.57

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.73	.21	.92	.04

Model: CNN
Layer: GRU
Embedding: concat
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.92	.44

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.89	.53	.94	.47

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.66	.54

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.74	.22	.92	.03

Model: CNN – Focal Loss Function
Layer: GRU
Embedding: fasttext
Problem Type: Hospital Mortality

AUC	AUCPRC	Accuracy	F1
.88	.58	.91	.34

Problem Type: ICU Mortality

AUC	AUCPRC	Accuracy	F1
.88	.51	.94	.30

Problem Type: Length of Stay 3

AUC	AUCPRC	Accuracy	F1
.70	.64	.62	.28

Problem Type: Length of Stay 7

AUC	AUCPRC	Accuracy	F1
.72	.21	.92	.02