

DeLLiriumM: A large language model for delirium prediction in the ICU using structured EHR

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Supplementary Information

Supplementary Table S1. Feature List of DeLLiriumM Model.

Category	Type	Name
Basic information	Static	Age, Body mass index (BMI), Gender, Race
Comorbidities	Static	Charlson comorbidity index (CCI), Acquired immunodeficiency syndrome, Cancer, Cerebrovascular disease, Congestive heart failure, Chronic obstructive pulmonary disease, Dementia, Diabetes without complications, Diabetes with complications, Myocardial infarction, Metastatic carcinoma, Mild liver disease, Moderate severe liver disease, Paraplegia hemiplegia, Peptic ulcer disease, Peripheral vascular disease, Renal disease, Rheumatologic disease
Assessment scores	Temporal	Confusion Assessment Method (CAM), Glasgow Coma Scale (GCS), Richmond agitation sedation scale (RASS)
Laboratory values	Temporal	Alanine transaminase (ALT), Aspartate aminotransferase (AST), Basophils, Eosinophils, Lymphocytes, Monocytes, Albumin, Anion gap, Arterial base excess, Arterial CO2 pressure, Arterial O2 Saturation, Arterial O2 pressure, Brain natriuretic peptide (BNP), C reactive protein (CRP), Calcium non-ionized, Chloride, Creatinine, Bilirubin direct, Glucose, Hematocrit, Hemoglobin, Prothrombin time (INR), Calcium ionized, Lactate, Arterial pH, Platelets, Potassium, Sodium, Specific gravity urine, Bilirubin total, Troponin-T, White Blood Cell (WBC)
Medications	Temporal	Heparin sodium, Propofol, Phenylephrine, Folic acid, Norepinephrine, Amiodarone, Fentanyl, Dexmedetomidine, Digoxin, Vasopressin, Epinephrine, Dopamine
Vital signs	Temporal	End-tidal carbon dioxide (EtCO2), Heart rate (HR), Inspired O2 Fraction, Diastolic blood pressure (DBP), Systolic blood pressure (SBP), Oxygen (O2) flow, Oxygen saturation (SPO2), Peak inspiratory pressure (PIP), Respiratory rate (RR), Body temperature (T), Tidal volume, Positive end-expiratory pressure (PEEP)

Supplementary Table S2. Parameters for domain-specific pre-training and classification fine-tuning of DeLLiriumM.

Phase	Pre-training		Fine-tuning	
Parameter	Space	Final	Space	Final
Layers	1-12	5	1-12	5
LR	1×10^{-5} - 5×10^{-5}	2×10^{-5}	1×10^{-5} - 5×10^{-5}	1×10^{-5}
Batch size	8-64	32	8-64	32