
BENJAMIN KUMMER

<HTTPS://WWW.LINKEDIN.COM/IN/BENJAMIN-KUMMER-MD-1465405/>

Required Skills:

Proficiency with healthcare data and machine learning approaches, NLP preferred but not required.

Preferred Team Communications:

TBD

Data Sources:

Lab, diagnosis code, visit history, vital sign, demographics (including socio-demographics such as income level/education), discharge destination, physician orders, medications administered, clinical scores (e.g. NIH stroke scale, Glasgow coma scale), visit history, diagnosis/procedure codes).

Other Items:

Project has timezone flexibility. Mentors and students will determine a good time for virtual meeting

PREDICTING 30-DAY READMISSION OR MORTALITY IN HOSPITALIZED PATIENTS WITH ISCHEMIC STROKE

A significant proportion of patients discharged from the hospital after being admitted with acute ischemic stroke are re-admitted to a hospital within 30 days. 30-day readmission rates are a key quality outcome as identified by CMS and 30-day mortality has also been studied as a meaningful short-term outcome. There has been much interest within the stroke community in accurately predicting these outcomes. However, most attempts at building such predictive models in the stroke literature are built on clinician-derived inputs. A machine-learning approach to solving this problem has not yet been published.

PROJECT OBJECTIVES

1. At any given time during a patient's hospitalization, accurately predict 30-day readmission and mortality in patients hospitalized for ischemic stroke using electronic health record (EHR) data and ML
 2. Provide hypothesis-generating data for interventions guided to reducing 30-day readmission/mortality after hospitalization for ischemic stroke.
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SUCCESSFUL PROJECT

The solution should be an application that:

- Is trained on large variety of clinical data (see below)
 - Uses state-wide population outcome data to accurately determine mortality/readmission
 - Auto-incorporates new data on an ongoing basis as it becomes available
 - Generates a "score" or numerical value assigned to the predicted outcome
 - Functions as an application extension within a given EHR
 - Can provide predictions of sub-outcomes, e.g. mortality only, readmission only.
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Intellectual Property: Students will own the IP from this project.