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BENJAMIN KUMMER

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

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**Required Skills:**

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

**Preferred Team Communications:**

TBD

**Data Sources:**

intensive care and non-intensive care patient-level data (including clinical (physician and nursing) notes, labs, vital signs, and radiology reports).

**Other Items:**

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

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PREDICTING CLINICAL DETERIORATION IN HOSPITALIZED STROKE PATIENTS

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Patients hospitalized with acute stroke have a high rate of mortality and medical complications that require transfer to an intensive care unit, not infrequently in the early stages of a patient's hospitalization for acute stroke, sometimes after a patient has initially and incorrectly been triaged to be cared for on a non-ICU unit. However, some of these complications are preceded by patterns in vital signs, laboratory values, imaging results, clinical notes and other clinical parameters such as neurological evaluation scores that occur before clinical deterioration, thus creating an opportunity to build a predictive tool. While some such patterns are intuitively obvious predictors to clinicians, a machine learning approach may identify hidden patterns.

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PROJECT OBJECTIVES

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At any given time, accurately predict the likelihood of inpatient mortality or transfer to an intensive care unit in patients hospitalized with acute stroke, using a variety of healthcare data types.

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SUCCESSFUL PROJECT

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Predictive model developed using a machine learning approach from a number of healthcare data inputs (as defined above and below) in a population of patients with acute stroke. Additional features:

- Predicts outcome subtypes, e.g. mortality alone vs. transfer to ICU alone
- Automatically incorporates EHR data as it becomes available, without the need for human selection of relevant data
- Assigns a graded score according to the likelihood of outcome.

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**Intellectual Property:** Students will own the IP for this project.