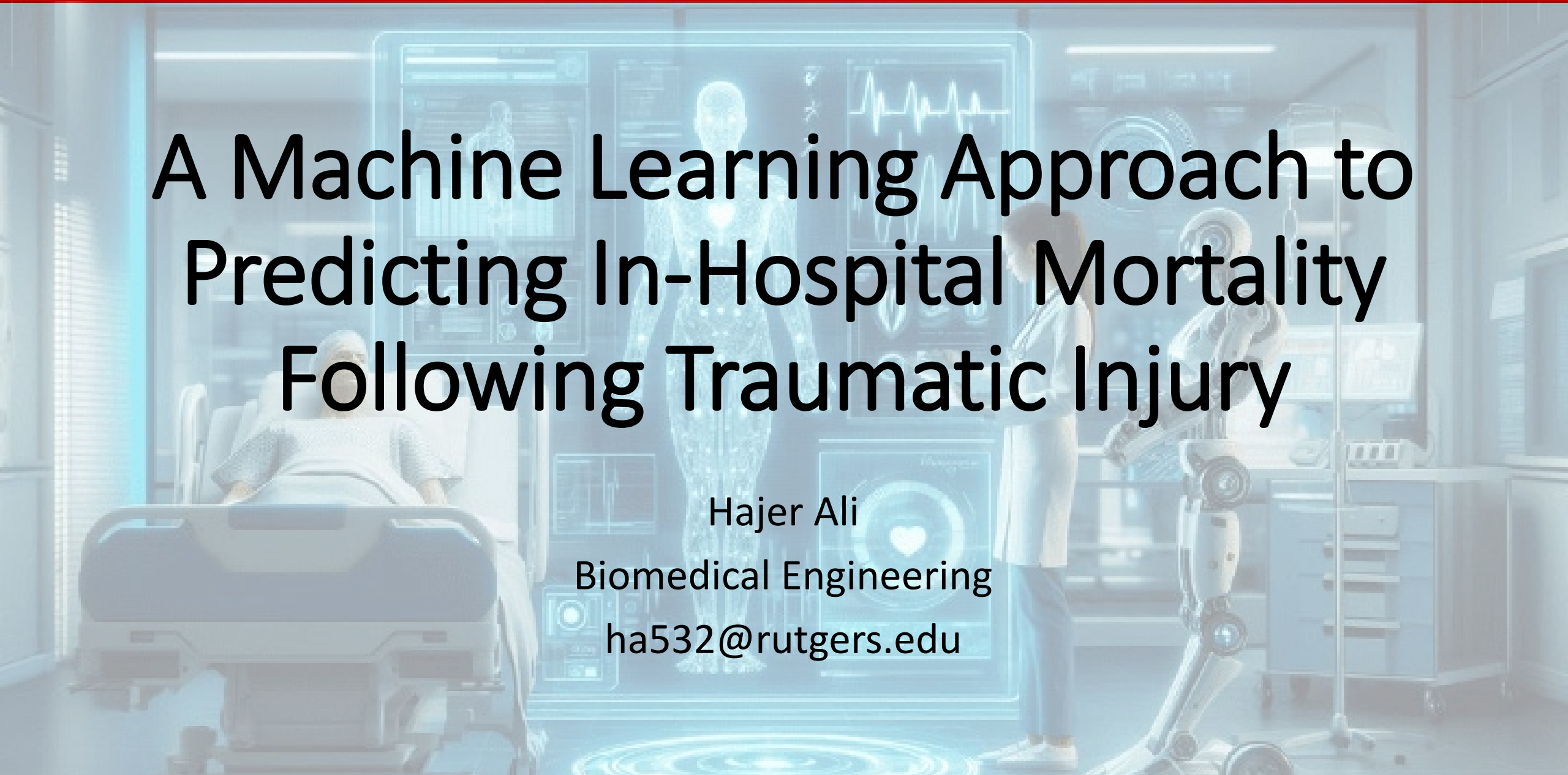

A Machine Learning Approach to Predicting In-Hospital Mortality Following Traumatic Injury

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Predicting In-Hospital Mortality Following Traumatic Injury

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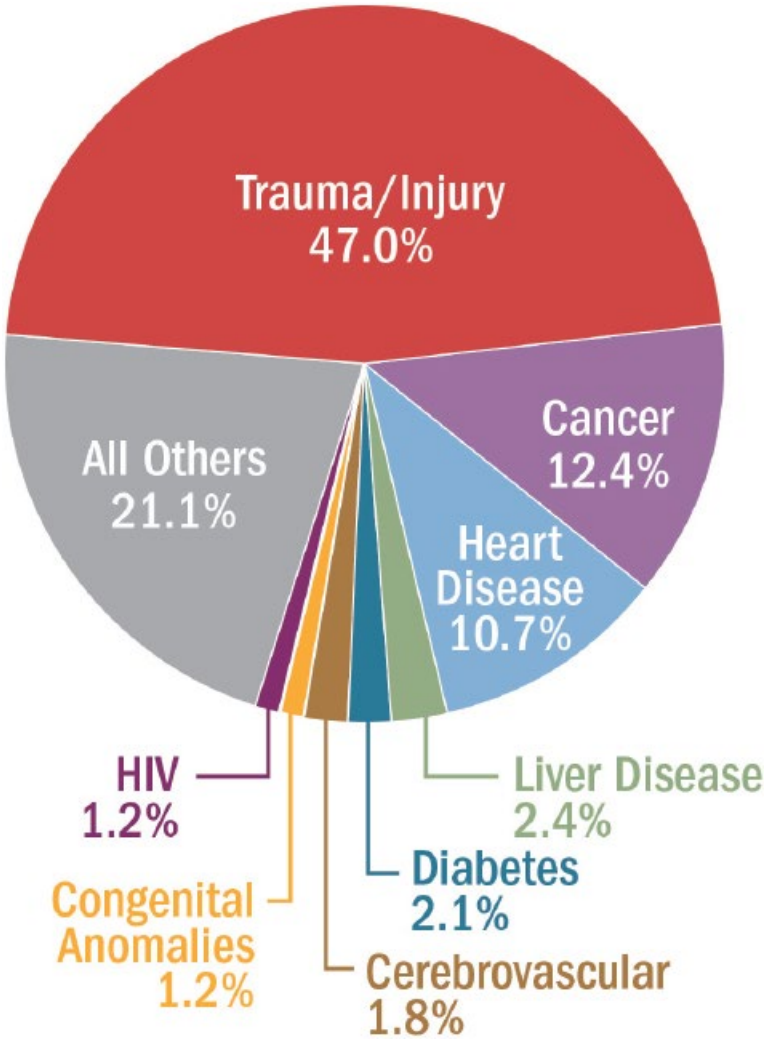
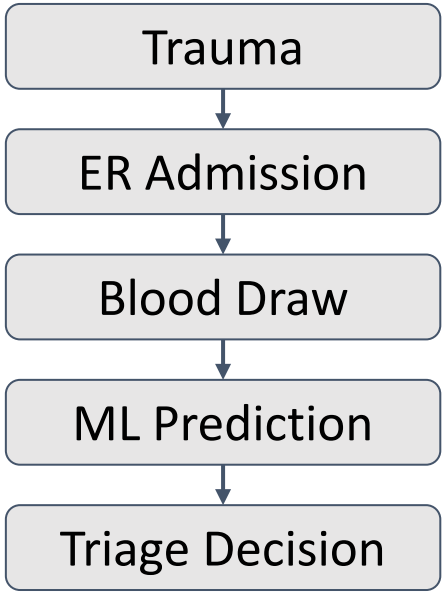


- **#1** Cause of Death (Ages 1-46)
- Early detection of risk critical for intervention and resource allocation
- Current scoring systems are limited in real-time use
- **Goal:** Develop an ML model using biomarker and clinical data to predict in-hospital mortality

TRAUMA SCORE	EXAMPLES
ANATOMICAL	• Abbreviated injury scale (AIS) • Injury severity score (ISS) • New injury severity score (NISS)
PHYSIOLOGICAL	• Paediatric Trauma Score (PTS) • Revised trauma score (RTS) • APACHE Score
COMBINED	• Trauma Score - Injury Severity Score (TRISS) • Kampala Trauma Score (KTS)

Table 1. Types of Trauma Scoring Systems



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- Dataset: 50 patients | ~ 2000 biomarkers (clinical + proteins + BME)
- Methods: Random Forest, SVM, Logistic Regression, Neural Nets
- Best AUC: 0.91 (Random Forest)
- Model refinement via SHAP & feature selection
- Clinical Care: running important/quick tests
- Next Steps: Incorporate Proteomics
  - Larger datasets (Only clinical)