

Visualizing AI-Powered Patient Insights

Enhancing Machine Learning Interpretability and Explainability in Healthcare

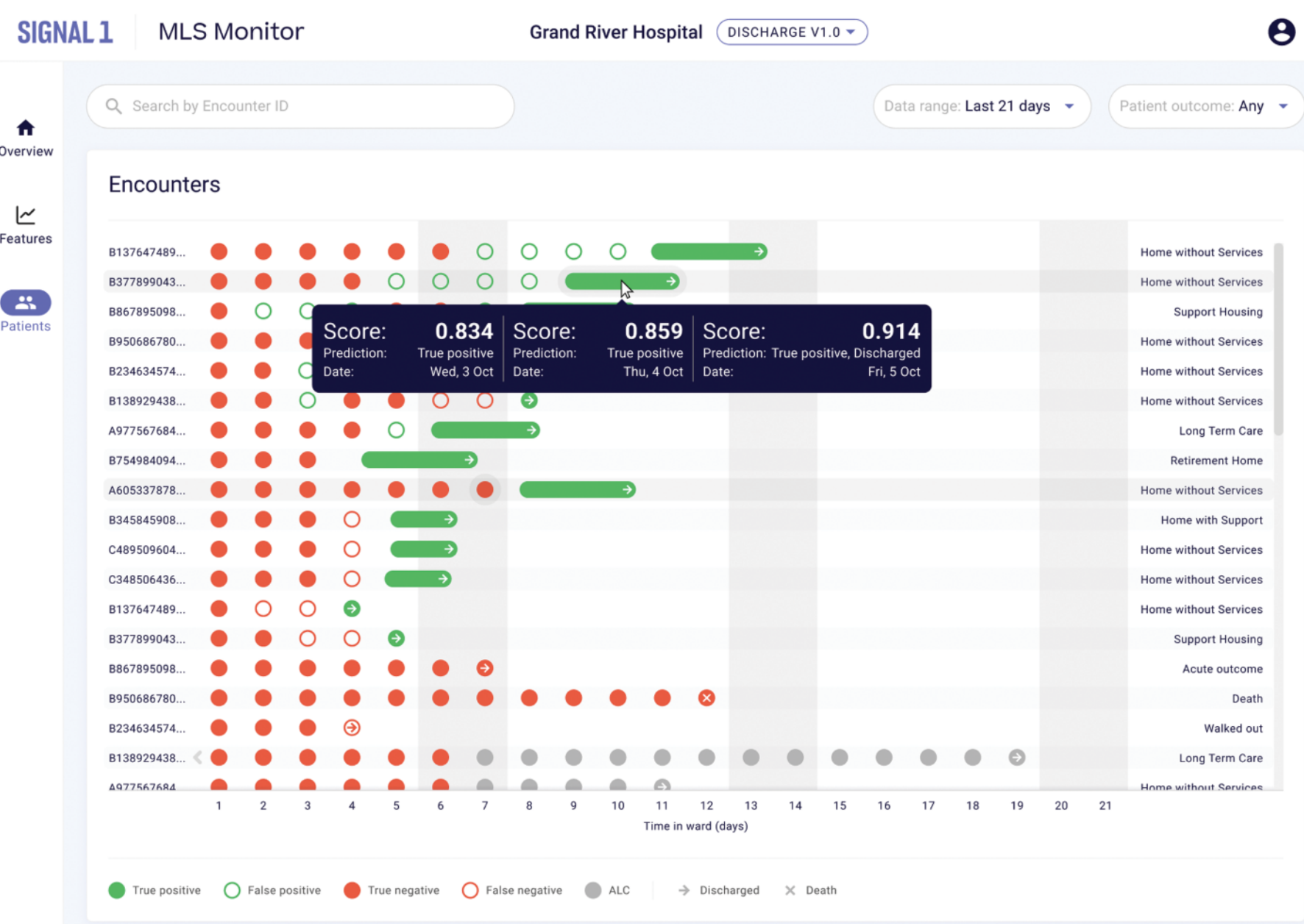
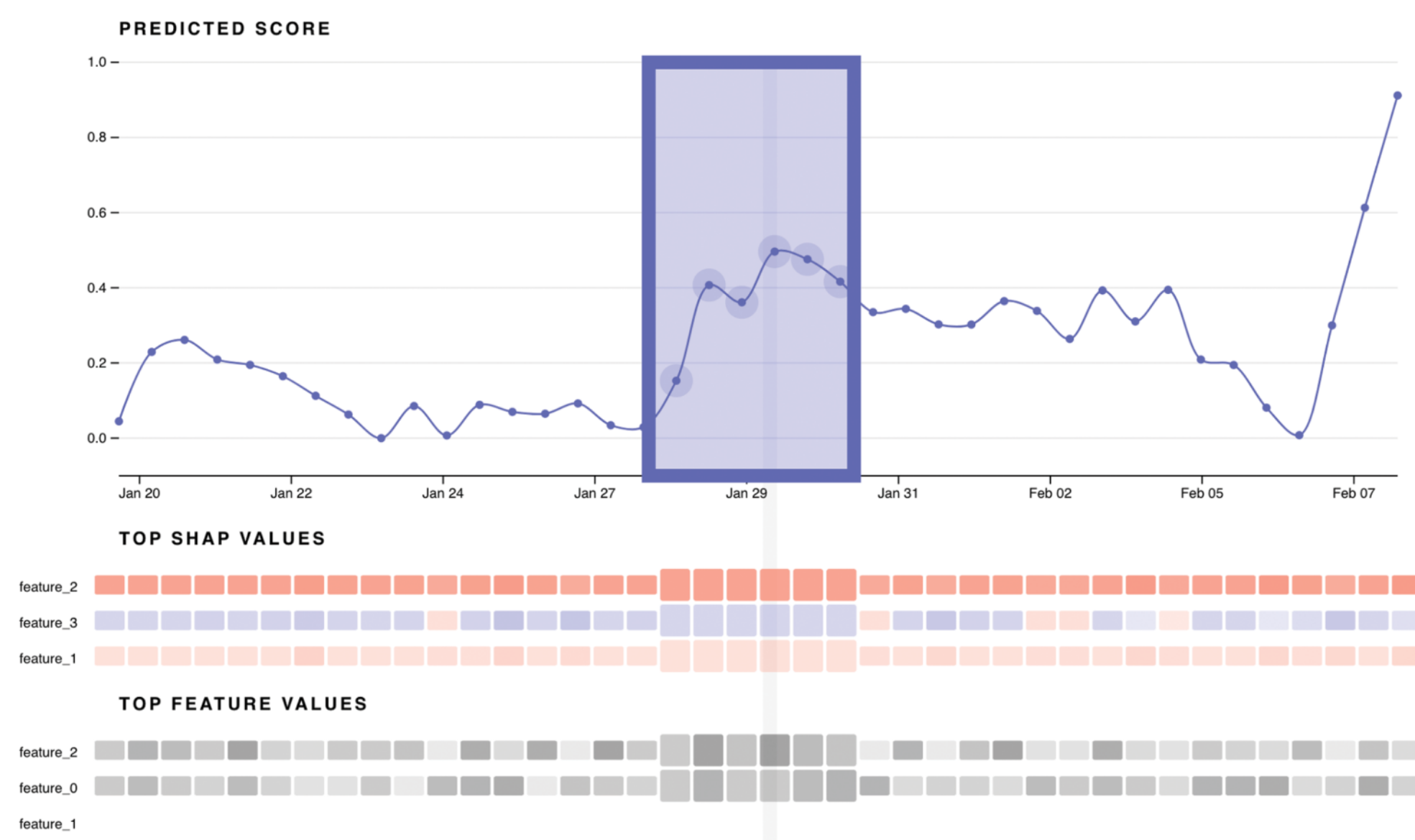
Jingtao Zhou

Carolina Nobre

ACADEMIC SUPERVISOR

Byunghoon Yoon

INDUSTRY SUPERVISOR



PROJECT SUMMARY

Machine learning models, often perceived as "black boxes," present a significant challenge in healthcare, particularly in patient-related predictions, where understanding the rationale behind model decisions is imperative for ensuring safe and reliable applications. To address this, we introduced an advanced monitoring system, enhancing machine learning explainability through interactive information visualization techniques. It focuses on visualization predictions of patient discharge timelines and the likelihood of health deterioration, offering deep, intuitive insights beyond mere numerical predictions.

We designed visualization solutions with several novel strategies and techniques, including bespoke visual encodings, dynamic brushing selections, and interactive annotations, among others. These techniques elucidate complex data, fostering an informed decision-making process for machine learning professionals and clinical practitioners alike. Our approach not only increases the transparency of AI predictions but also instills confidence among end-users, bridging the gap between technology and practical healthcare solutions. It is instrumental in Signal 1's mission to transform healthcare through AI.

SIGNAL 1