

# Data Science Capstone Topic

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## Introduction

The overarching goal of my data science capstone project revolves around the phrase, “personalized medicine.” I will explore how data-driven approaches can assist this area of medicine, focusing primarily on early detection and chronic disease management. My aim is to design a prototype of an interface that integrates multiple streams of patient data, including clinical records, genomic information, wearable device data, and lifestyle factors. Doing so will help present a more complete picture of individual health. This information will be delivered in a dashboard geared towards the clinician that highlights risk factors, recommendations, and anomaly detection that suggests elevated risk.

From the technical perspective, this project will involve both data integration and predictive modeling. I plan to use machine learning methods (such as risk prediction or survival analysis) to combine multiple data sources into clear explanations. Rather than only outputting a single score, the system will provide detailed responses so that clinicians can draw their own conclusions. The dashboard will also incorporate interactive data visualizations to help doctors interpret these insights.

Finally, a major emphasis will be placed upon the ethical aspects of the project. A biased health system of this sort could be extremely dangerous and, if not addressed properly, might do more harm than good. I will also consider critical issues such as data privacy, algorithmic bias, and accessibility of personalized healthcare.