

**DEVELOPING A RECOMMENDATION SYSTEM FOR COLLEGIATE GOLF  
RECRUITING**

**THE IMPACTS OF USING AI-BACKED APPLICANT TRACKING SYSTEMS FOR  
RECRUITMENTS PROCESSES**

An Undergraduate Thesis Portfolio  
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By

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## **SOCIOTECHNICAL SYNTHESIS**

The proliferation of data collection and analysis in the 21<sup>st</sup> century has resulted in significant technological advancements including the widespread use of decision-making algorithms to generate accurate predictions across numerous industries, but the continued use of unregulated decision-making algorithms has the potential to exacerbate implicit biases. The technical project aims to accurately predict the future performance of junior golfers based on their historical data. Through the creation of a recommendation dashboard, the technical project will provide collegiate golf coaches the ability to make well-informed decisions on which junior players to recruit. The science, technology and society (STS) research focuses on the implications of decision-making algorithms, specifically addressing the presence of bias within hiring algorithms, known as applicant tracking systems (ATS). The loosely coupled technical and STS projects explore decision-making algorithms, with the technical topic focusing on the creation and implementation of decision-making algorithms and the STS topic exploring the ethical implications of one such algorithm.

Current golf recruiting practices rely heavily on public rankings and coaches collecting player information themselves by researching players, attending tournaments and making personal connections. The technical report outlines the need for an analytics driven recommender system which will greatly simplify the recruiting process as well as grant coaches more confidence in their recruits. The proposed recommender system uses historical tournament data detailing each hole a golfer has played to generate summary statistics. Six models were then created to provide insight on the current and future performance of individual golfers.

Modelling indicated that six metrics related to a player's mean performance were significant in predicting success in college golf. Four other models were developed using the

significant metrics to predict Division I play, college rank, similar players and tournament wins. These models were designed with the intention of building upon each other in a coach-facing dashboard to provide as much information as possible to college golf coaches about which players they should recruit.

The STS research aims to detail the presence of bias within decision-making algorithms, specifically describing the potential for bias to be present within ATS used in the hiring space. In order to understand whether implicit biases could be detected and prevented in recommendation systems, the developmental process of applicant tracking systems was outlined with the framework of Social Construction of Technology. Pulling research from various technical reports and case studies, methods of bias mitigation were elucidated and depicted using a handoff modeling frame.

The research indicates that bias can present itself in decision-making algorithms in several ways including but not limited to the use of influential variables, biased sampling, or biased historical data. Adding a regulatory actor, equipped to recognize bias and make adjustments, in the process of developing decision-making algorithms is a crucial step towards producing unbiased technology. Algorithm developers can have a positive impact on both the social and technical environments of the spaces in which they are implemented by making the effort to identify and resolve occurrences of bias.

The implementation of decision-making algorithms can afford organizations many benefits namely reductions in time and manpower needed to complete certain tasks, and expansions in the understanding of complex systems. However, the possibility for bias within these algorithms presents an ethical dilemma. In order to ensure the use of fair and ethical

technology, it is necessary to not only recognize the prospect for bias within algorithms but also to employ safeguards to combat against.

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