The primary objectives of this project would be:

1. **Implement real-time recognition of cricket players during live broadcasts, allowing users to instantly view comprehensive player statistics(Computer Vision).**

1. [**Automatic Player Face Detection and Recognition for Players in Cricket Games**](https://www.researchgate.net/publication/379071780_Automatic_Player_Face_Detection_and_Recognition_for_Players_in_Cricket_Games)

**Summary**: This paper presents an augmented reality system using the AdaBoost algorithm for player face detection and recognition, enhancing live broadcasts with real-time player information.

**Gap**: The system’s accuracy decreases with non-frontal face angles and requires high-quality video input.

2. [**Automatic Player Detection and Identification for Sports Entertainment Applications**](https://ris.utwente.nl/ws/files/266664644/Mahmood2015automatic.pdf)

**Summary**: This research develops a sports broadcasting application for automatic detection and recognition of players, displaying their information in real-time.

**Gap**: The face detection algorithm requires faces to be frontal or near-frontal for high accuracy.

3. [**Enhancing Cricket Performance Analysis with Human Pose Estimation and Machine Learning**](https://www.mdpi.com/1424-8220/23/15/6839)

**Summary**: The study uses human pose estimation to predict and analyze cricket strokes.

**Gap**: Real-time responsiveness and handling occlusions during fast movements need improvement.

4. [**A Comprehensive Review of Computer Vision in Sports: Open Issues, Future Trends and Research Directions**](https://www.mdpi.com/2076-3417/12/9/4429)

**Summary**: This review covers the use of computer vision in sports, highlighting current research and future trends.

**Gap**: More scalable and cost-effective solutions for real-time player recognition are needed.

5. [**Optimized Deep Learning-Based Cricket Activity Focused Network**](https://www.researchgate.net/publication/371978339_Optimized_deep_learning-based_cricket_activity_focused_network_and_medium_scale_benchmark)

**Summary**: This paper discusses a deep learning network for recognizing and classifying cricket activities in real-time.

**Gap**: High computational requirements limit real-time application on standard broadcasting equipment.

6. [**Cricket Shot Detection Using 2D CNN**](https://ieeexplore.ieee.org/abstract/document/10142272)

**Summary**: This study proposes a system using a 2D Convolutional Neural Network to automatically detect and classify cricket shots from video footage.

**Gap**: Needs improvement in handling occlusions and overlapping players.

8. [**Multi-camera Multi-player Tracking with Deep Player Identification**](https://www.sciencedirect.com/science/article/abs/pii/S0031320320300650#:~:text=Highlights&text=We%20propose%20a%20robust%20tracking,%2C%20IPOM%20and%20KSP%2DID.)

**Summary**: Proposes a framework for multi-camera tracking and identification of players, improving tracking accuracy using deep learning.

**Gap**: High computational requirements and complex data integration challenge real-time processing.

9. [**Optical Tracking in Team Sports**](https://www.degruyter.com/document/doi/10.1515/jqas-2020-0088/html?lang=en)

**Summary**: Discusses traditional methods like Histogram of Oriented Gradients (HOG) and Gaussian Mixture Model (GMM) for detecting players in team sports.

**Gap**: Struggles with dynamic backgrounds and varying lighting conditions.

10. [**Automated Recognition of the Cricket Batting Backlift**](https://www.nature.com/articles/s41598-022-05966-6)

**Summary**: Introduces a deep learning model for recognizing cricket batting backlift, achieving high accuracy in classifying batting techniques.

**Gap**: Real-time applicability is limited by dependence on high-quality video input.

11. [**Cricket Scoreboard Automation using Umpire Gestures**](https://www.ijresm.com/Vol.2_2019/Vol2_Iss7_July19/IJRESM_V2_I7_80.pdf)

**Summary**: Presents a system that automates cricket scoreboards by recognizing umpire gestures using CNNs, enhancing broadcast efficiency.

**Gap**: Further refinement needed to handle diverse gesture variations and background noise. Real-time processing speed and scalability challenges remain.

1. **Develop a user-friendly mobile application with an interactive feature where users can request specific player statistics through text input(LLM/Prompt Engineering).**
2. **Developing a unique dataset of cricket players, which has not been done before with such depth of record-keeping and analytics to the best of my knowledge.**
3. **Integrate predictive analytics to suggest the best playing 11 for specific match conditions, providing clear reasoning behind each player selection(ML model + Novel rating mechanism + graph neural network for connections).**

1. [**Optimising Cricket Team Selection for One Day International Series Based on Match Conditions**](https://dl.ucsc.cmb.ac.lk/jspui/bitstream/123456789/4627/1/2018%20MCS%20027.pdf)

**Summary**: This paper explores optimization techniques for selecting the best cricket team for One Day International (ODI) series by considering match conditions such as pitch type, weather, and opposition team. The study uses machine learning algorithms to analyze historical match data and predict optimal team compositions.

**Gap**: Real-time adaptability and the integration of live match data remain challenging for this model.

2. [**Increased Prediction Accuracy in the Game of Cricket Using Machine Learning**](https://www.researchgate.net/publication/324254587_Increased_Prediction_Accuracy_in_the_Game_of_Cricket_Using_Machine_Learning)

**Summary**: This study focuses on enhancing prediction accuracy in cricket using advanced machine learning techniques. It evaluates different algorithms, including neural networks and ensemble methods, to predict match outcomes and player performances.

**Gap**: The model’s accuracy is heavily dependent on the quality and completeness of the input data.

3. [**Data Science Approach to Predict the Winning Fantasy Cricket Team Dream 11 Fantasy Sports**](https://arxiv.org/pdf/2209.06999)

**Author**: Sachin Kumar S. et al. (2022)

**Summary**: This research applies data science to predict the best fantasy cricket team on Dream 11, using Greedy and Knapsack Algorithms for optimal player selection based on performance metrics.

**Gap**: Tailored for fantasy sports, it may not fully translate to real-world match conditions with dynamic factors.

4. **[Cricket Team Prediction Using Machine Learning Techniques](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3572740)**

**Summary**: This study uses various machine learning techniques to predict the best playing 11 for cricket matches. Factors considered include player form, pitch conditions, and historical performance data.

**Gap**: The integration of real-time data and adaptability to changing match conditions remain challenging aspects.

5. [**Sport Analytics for Cricket Game Results Using Machine Learning: An Experimental Study**](https://www.emerald.com/insight/content/doi/10.1016/j.aci.2019.11.006/full/html)

**Author**: Kampakis & Thomas (2020)

**Summary**: This paper evaluates machine learning techniques such as Naive Bayes, Logistic Regression, and Random Forests to predict cricket match outcomes using historical data from the English Cricket Cup.

**Gap**: Focuses on match outcomes rather than detailed player-specific analytics for team selection.

6. [**Predicting Optimal Cricket Team Using Data Analysis**](https://ieeexplore.ieee.org/document/9396861)

**Summary**: Develops models to predict the best playing 11 considering factors like pitch conditions, opposition team, and historical performance using Decision Trees and Random Forests.

**Gap**: Accuracy influenced by data quality and real-time match conditions.

7. [**Player Performance Predictive Analysis in Cricket Using Machine Learning**](../../../../ria_38.02_08.pdf)

**Summary**: Focuses on developing predictive models for assessing cricket player performance, comparing Naive Bayes, Decision Tree, Random Forest, and SVM algorithms.

**Gap**: Needs more sophisticated data pretreatment methods and real-time data integration.

8. [**Data Analytics in the Game of Cricket: A Novel Paradigm**](https://www.sciencedirect.com/science/article/pii/S1877050922008523)

**Summary**: Introduces a timing index for predictive capabilities, considering factors like bat speed, back lift angle, and impact bat speed.

**Gap**: Extensive data collection and preprocessing required for real-time application.

9. [**RunsGuard Framework: Context Aware Cricket Game Strategy for Field Placement and Score Containment**](https://www.mdpi.com/2076-3417/14/6/2500#:~:text=It%20focuses%20on%20factors%20such,opportunities%20and%20enhancing%20team%20performance.)

**Author**: Shetty et al. (2023)

**Summary**: Uses ball-by-ball data and advanced analytics for field placement and score containment strategies, integrating contextual factors such as player strengths and match conditions.

**Gap**: High computational requirements make real-time implementation challenging.

10. [Cricket Team Prediction Using Machine Learning Techniques](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3572740)

**Summary**: Explores machine learning techniques to predict the best playing 11 for cricket matches, considering factors like player form, pitch conditions, and opposition strengths.

**Gap**: Integration of real-time data and adaptability to changing match conditions remain challenges.

11. [**Decoding Player Performance with Predictive Modeling**](https://www.analyticsvidhya.com/blog/2023/06/the-science-of-t20-cricket-decoding-player-performance-with-predictive-modeling/#:~:text=Each%20model%20is%20trained%20and%20the%20respective%20standard%20deviations%20are%20calculated.&text=The%20trained%20models%20predict%20the,respective%20columns%20of%20%E2%80%9Clatest%E2%80%9D.)

**Summary**: Describes a comprehensive approach to predicting player performance using predictive modeling techniques, including data collection, preprocessing, and applying machine learning algorithms.

**Gap**: Reliance on historical data limits effectiveness in new match conditions.

12. [Machine learning-based Selection of Optimal sports Team based on the Players Performance](https://ieeexplore.ieee.org/document/9137891)

**Summary**: machine learning approach to select optimal sports teams based on player performance data. Various algorithms are utilized to analyze historical performance metrics, predict future outcomes, and determine the most effective team compositions. The study focuses on maximizing team synergy and overall effectiveness through data-driven insights

**Gap**: real-time adaptation and the integration of dynamic factors such as player injuries, psychological state, and unquantified elements like teamwork and leadership, which are critical for sports team optimization.

13. [**Sport Analytics for Cricket Game Results Using Machine Learning**](https://www.researchgate.net/publication/337541526_Sport_Analytics_for_Cricket_Game_Results_using_Machine_Learning_An_Experimental_Study)

**Summary**: Evaluates machine learning techniques for predicting cricket match outcomes based on historical data.

**Gap**: Focuses on match outcomes rather than detailed player-specific analytics for team selection.