Project Description – Peter Pang

Project Name: **ServTennis**

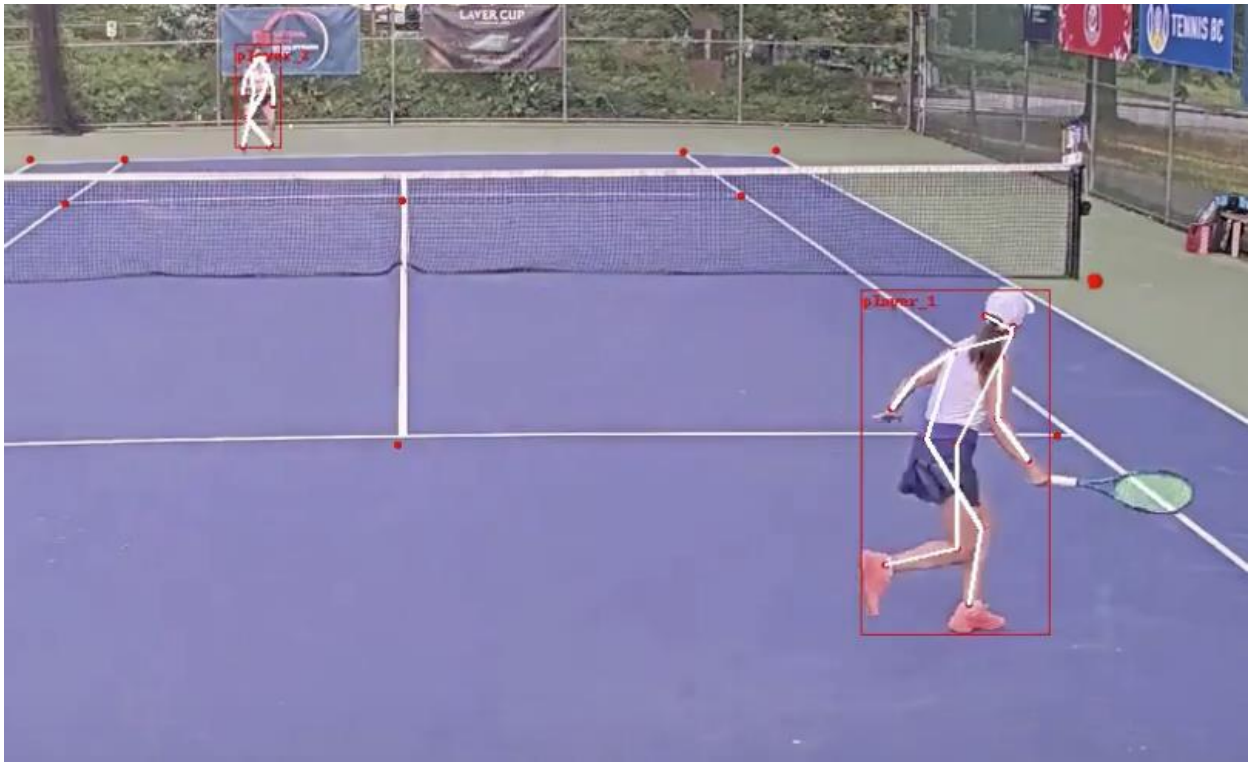
During my current role as a Machine Learning Developer for the BCIT Industry Practicum, I have been engaged in a fascinating project called ServTennis. This initiative blends my enthusiasm for tennis with my proficiency in machine learning, focusing on refining tennis analytics. User can get useful insight of their movement and shot placement using our machine learning powered application.

In this project, I delved into various machine learning algorithms, carefully assessing their suitability for specific tasks in tennis analysis. Tasks ranged from enhancing tennis ball detection and player recognition to classifying shots and identifying court boundaries. To facilitate testing and optimization, I created Jupyter Notebooks, providing a dynamic environment for algorithm experimentation.

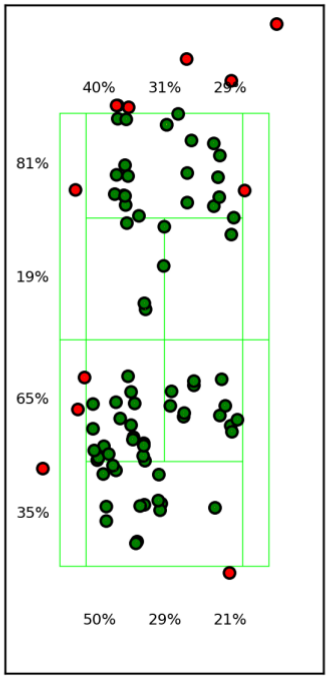
A notable achievement within ServTennis was employing the CatBoost Regressor to accurately detect ball bounces, utilizing ball movement features. Additionally, I generated insightful heatmaps to visually represent player movement patterns on the court, enhancing the interpretability of the analytics.

The technological toolkit for ServTennis included Python, OpenCV, PyTorch, Jupyter Notebook, Matplotlib, Pandas, NumPy, and Google Colab. This diverse set of tools allowed for a flexible and efficient implementation of machine learning algorithms.

ServTennis has not only strengthened my technical capabilities but has also deepened my understanding of applying machine learning in practical, meaningful ways. This project underscores my commitment to continuous learning and my passion for creating solutions that bridge the gap between sports and technology. Sample screenshots that showcase our application:



Stanley Park Shot Placement Heatmap



total bounces: 102

Top and Bottom Player Heatmap with Smoothing