SwingPigeon Tennis Grip Analyzer Mobile App

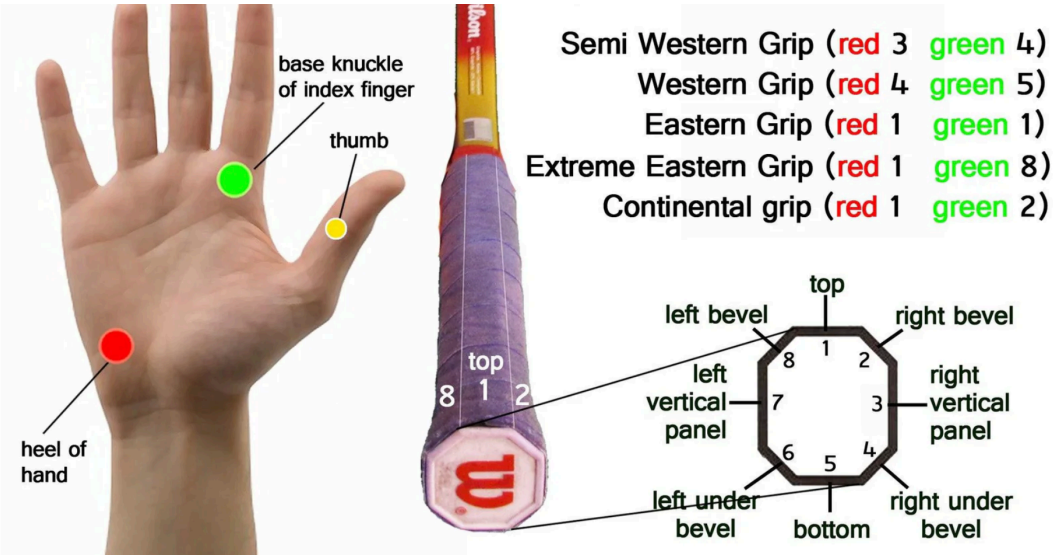
SwingLens LLC

SwingPigeon

SwingPigeon is an upcoming mobile app product that will help aspiring tennis players improve their tennis swing. The AI technology for swing analysis was developed by two Summer Field Session teams starting in May 2025 and continued through August 2025. We sponsored a tennis tournament in Boulder in July 2025 and tested our system with good results. The July launch used a web application for users to review their swings. A user facing mobile application is in development.

Field Session Project

An essential element of a tennis swing is the tennis grip. Tennis players use different types of grips for their forehand swings. The choice of grip has a major impact on the swing path they must use to accomplish an effective swing. Most new players to tennis don't understand how to choose a grip that fits their body, ability, and swing motion.



In this field session, the team will develop a standalone mobile application that will allow the user to point their camera at their stationary hand while gripping the racquet. The mobile app will use image classification to detect what grip they are using. This information will be used to provide recommendations on when/how to use this grip. This information can also be provided by the user into the SwingPigeon swing analysis mobile application (being developed in parallel) to get better results.

The flow of the application will be something like:

- The user launches the application
- The application prompts the user to grip their tennis racquet for one of several swing types:
    - forehand topspin
    - forehand slice
    - forehand swing volley
- The application will trigger the camera, and display the real time camera view on screen
- The application will use augmented reality to guide the user to orient the racquet such that grip analysis can be done (details of this to be provided)
- A photo of the hand and racquet is taken with the camera
- The mobile application will run a machine learning model to classify the grip

To achieve this project, the field session team will need to capture hundreds of different pictures for training the machine learning model.

- We will provide a set of tennis racquets of different colors.
- Training images shall be taken in different lighting conditions, with humans of various skin colors

Implementation

The primary work for this field session will be the mobile application. It is desirable to have both Android and iOS versions of the mobile application. Therefore we are asking the team to use React Native to build a cross platform application. As development progresses, we will engage a designer to provide graphic elements for the application.

Organization

SwingLens is a private startup with leaders with decades of experience in industry. Members of the summer teams will be available to consult as needed. We have developed expertise in image analysis.

Throughout the summer, we met daily for standup and had weekly sprint retros. We expect to have two standups a week with the fall field session. In the early days, we will hold design sessions and technical deep dives into the world of SwingPigeon.