Keypoint Annotation for Sports Analysis

A specialist team of Lionbridge's contributors annotated 2,500 images with over 40,000 landmarks. The resulting data was used to build out video tracking models for performance analysis.

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The Challenge

For the modern athlete, video analysis is crucial to a successful training regime. While it's commonly seen in team sports, where it helps to identify tactical weaknesses, video analysis is also useful on the individual level. Here, it can uncover miniscule performance improvements that may go unmissed by the human eye, while also providing an early warning system that can help to prevent injuries. In short, video analysis helps athletes to compete at the highest level - and stay there for longer.

Our client aimed to develop a national training infrastructure that would foster the development of elite sportspeople. Video analysis was an essential part of their programme, helping them to study athlete performance and safeguard against injury. To build their video analysis models, our client needed a partner who could provide them with a scalable source of annotated training data. This data needed a high level of accuracy, so that the resulting machine learning model could capture the kind of minutiae that improves athletes on the cusp of greatness.

The Solution

Lionbridge's track record and commitment to quality processes before, during, and after annotation persuaded our client to partner with us.
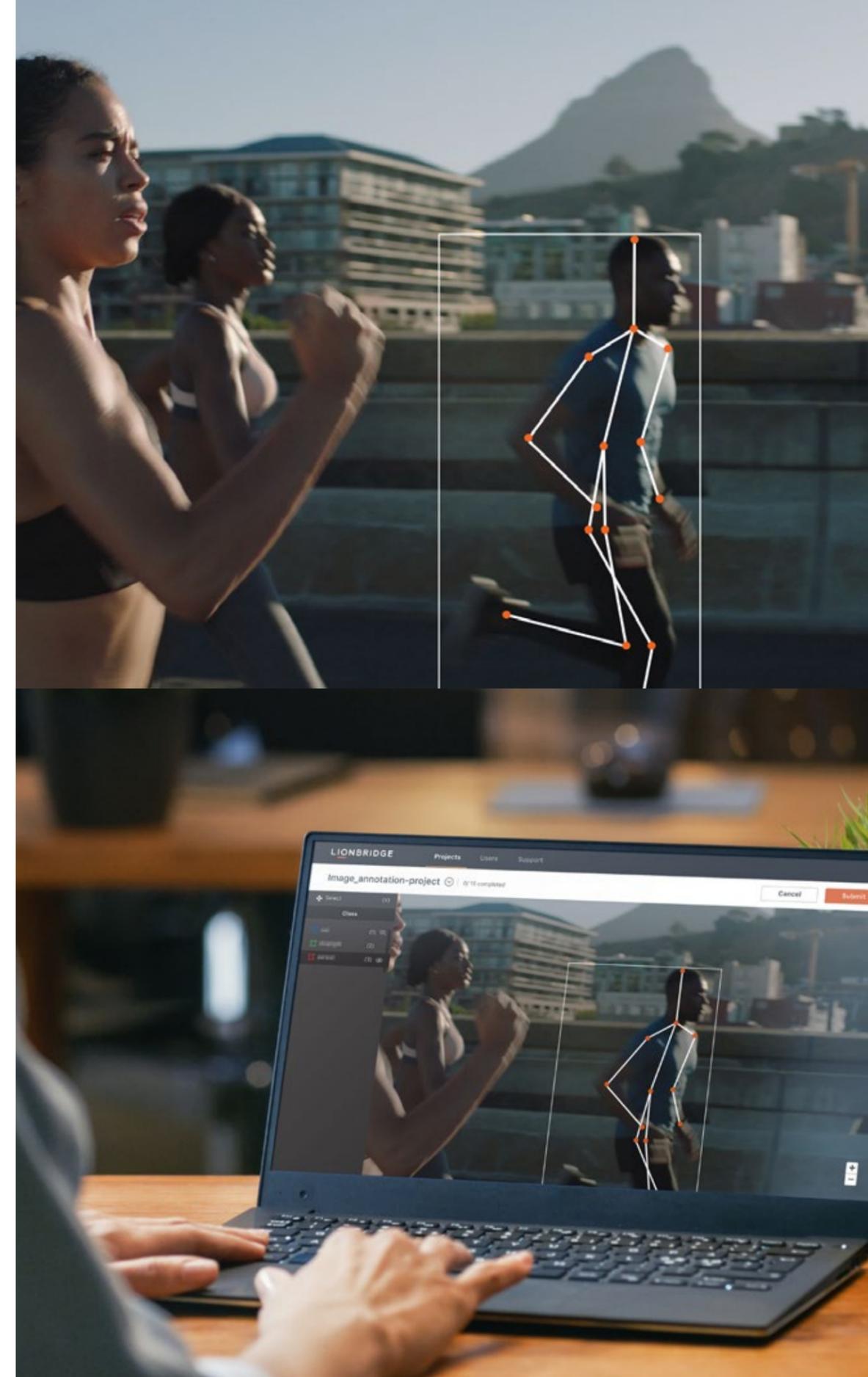
- **Customized Workflows**
  In close collaboration with the client, our project managers designed a workflow that would ensure maximum adherence to the quality guidelines. They also carefully assembled a specialist team of annotators for the project using a stringent testing process.
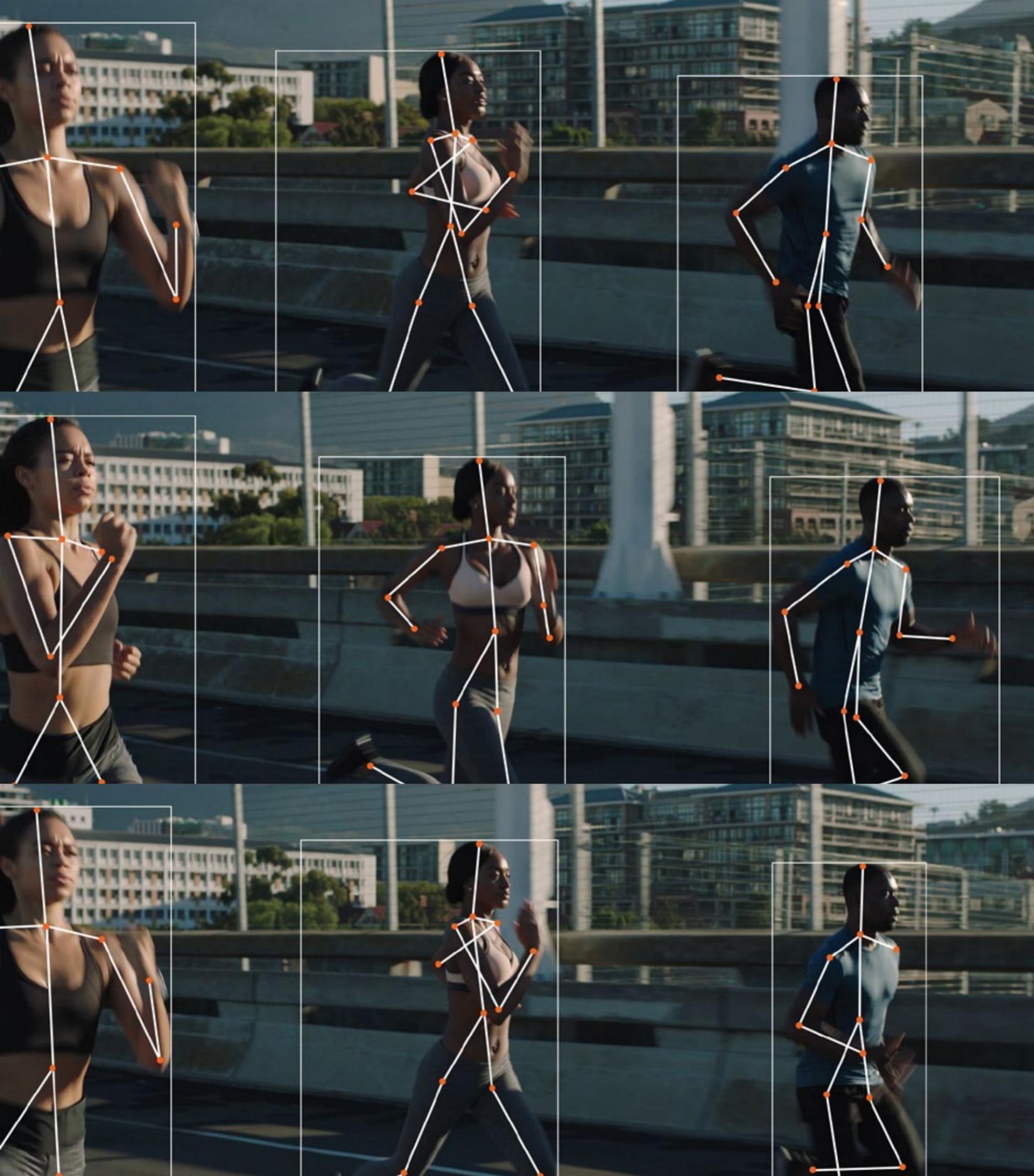
- **Landmark Annotation**
  Using our custom-built annotation platform, our team annotated 2,500 images with a bounding box and 16 keypoints, each corresponding to a body part. These keypoints had to be consistent across the entire dataset. Our annotators completed over 40,000 annotations in 3 weeks.

- **Quality Assurance**
  We used a combination of custom automated checks and expert human evaluation to rectify any errors in the annotated data. By paying particular attention to keypoint visibility and consistency in both individual frames and the dataset as a whole, we were able to produce annotations that tracked movement to a high degree of accuracy.

The Results

17

labels per image

2,500

images annotated

10+

contributors

By partnering with Lionbridge, our client was able to accurately implement movement tracking across a wide range of videos. After delivery, we received positive feedback from the client. We are in discussion for further annotation projects at the time of writing.

About the Client

Our client is a government agency focused on improving access to sport from grassroots to elite level nationwide. They are also building a modern, robust sports infrastructure across the country, including multiple high-performance facilities for elite athletes.

Lionbridge at a Glance

300+ languages and dialects

20+ years of annotation experience

1 million global contributors

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