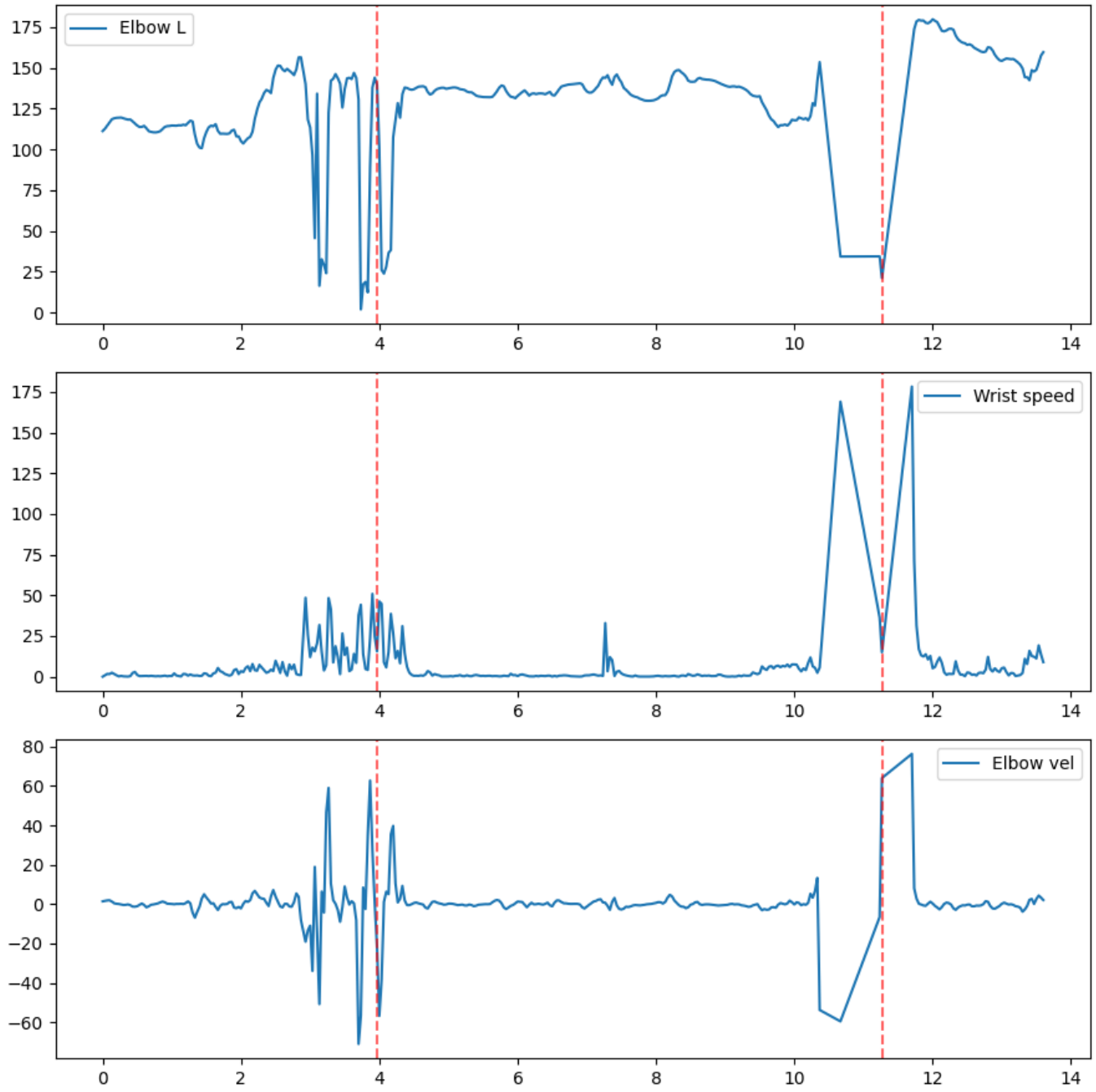
Archery Evaluation — Video-1

Author: Tushar R. Islampure

One-line summary: Pose-based kinematic analysis and release detection for archery posture evaluation.



Methodology:

- Methodology: We extract 2D pose landmarks from input video using MediaPipe Pose.
- We compute elbow angles, wrist speed, stance width and elbow angular velocity over time.
- Release candidates are detected where wrist speed spikes co-occur with large elbow angular acceleration.
- A RandomForest classifier flags windows as GOOD/BAD posture using elbow and wrist statistics.
- Outputs: annotated video, metrics CSV, charts, and this PDF with visualizations.

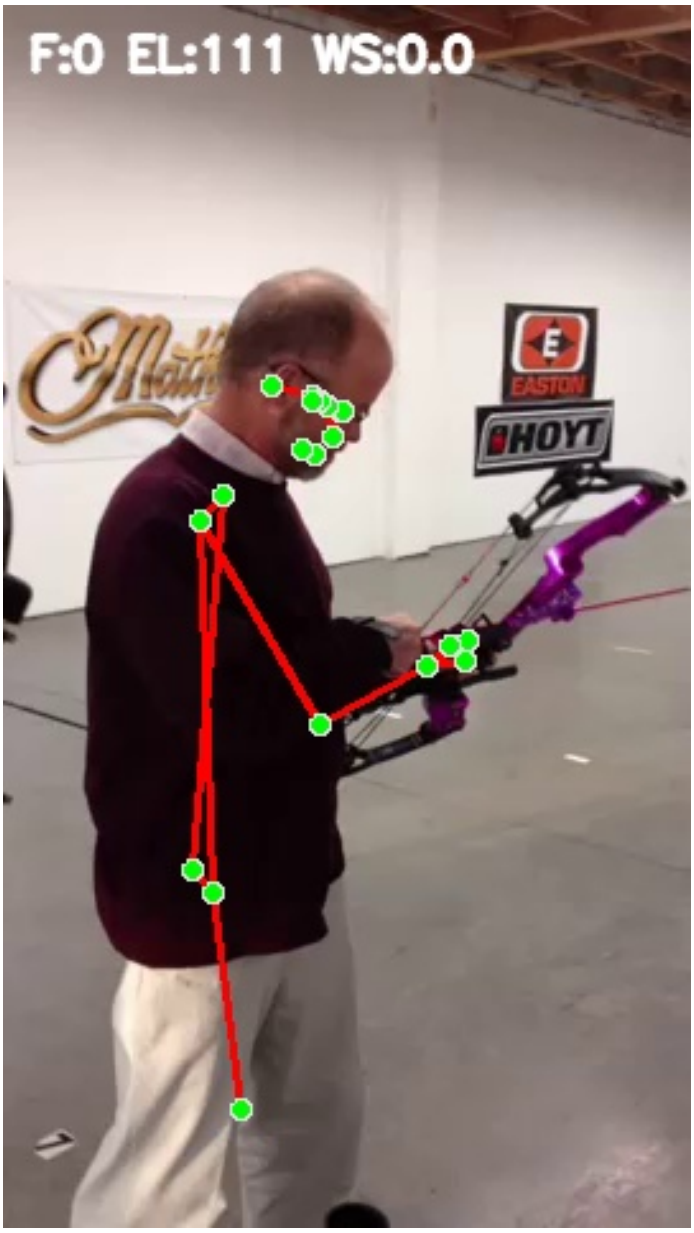
Claims / Novelty:

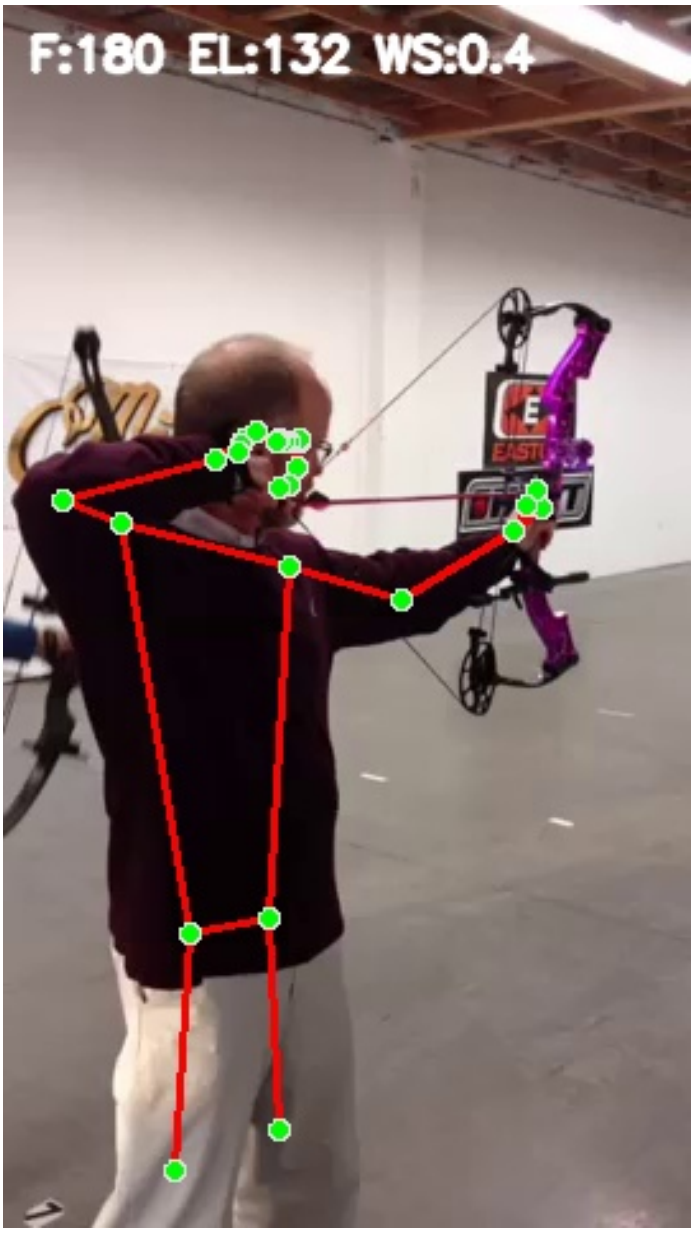
Claim (high-level): A computer-implemented method for assessing archery posture using co-occurrence

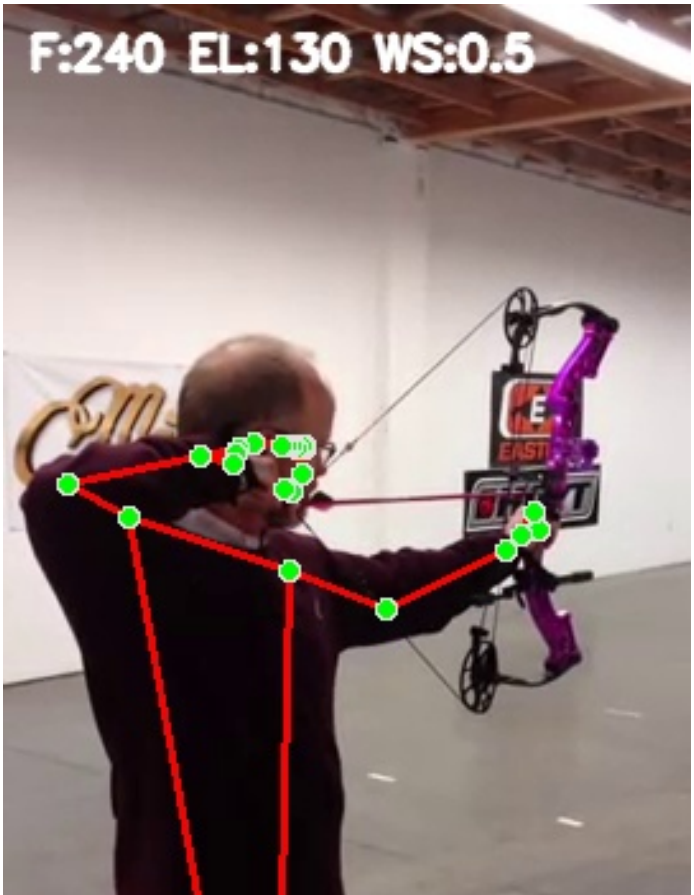
of wrist speed spikes and elbow angular velocity to identify release events and advise corrective actions. The method uses sliding-window stability metrics and a classifier to identify suboptimal posture windows.

Key observations & release candidates:

- Average elbow (left): 130.5 deg
- Average stance width (px): 44.3
- Detected release candidate frames: 118, 313




F:180 EL:132 WS:0.4


F:240 EL:130 WS:0.5