

CV PROJECT WEEKLY UPDATE

Week 2: March 10, 2025 – March 15, 2025

Work Done:

- Identified new movement analysis metrics that could enhance our methodology:
 - **Power Output:** Calculated as $(\text{mass} * \text{gravity} * \text{jump height}) / \text{contact time}$, providing an estimate of the athlete's explosive strength. Mass can be known or estimated, and jump height and contact time are measurable from video.
 - **Eccentric Phase Duration:** Time from initial contact to maximum knee flexion, indicating the duration of the energy-storing phase.
 - **Concentric Phase Duration:** Time from maximum knee flexion to take-off, reflecting the duration of the propulsion phase.
 - **Maximum Velocity During Jump:** The peak velocity of the center of mass during the jump, estimated from video tracking.
 - **Symmetry Indices for Joints:** Comparing angles or movements of left and right joints (e.g., knee, hip) to assess balance, beyond foot symmetry.
- Based on our understanding, we have started the basic implementation of these metrics.

Planned Activities for Next Week:

- Continue the investigation of new metrics to further enhance project methodologies.