Motivation

- Manual timing is often inaccurate and can lead to a lot of variance
- Fully Automatic Timing (FAT) allows incredible precision professional events and competitions, but the cost is prohibitive for training purposes
- Beneficial to have a similar system available on personal electronic devices.

Rapid Rotation Angle Detection

- Use region orientation to detect variations in angle rotation
- However, unable to take into account camera translation

Background Subtraction

Combined Differences Through Finish Line

- Subtractive Image Processing used to detect an object moving across the finish line

SIFT and RANSAC

- Use Feature Detection to translate and rotate a virtual finish line between frames