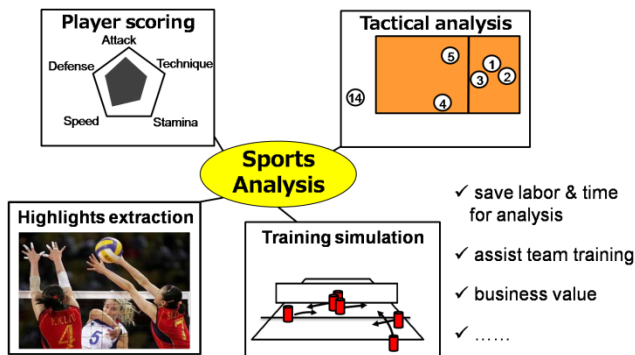


3D Trajectory Curve and Spatial Relationship Feature based Action Recognition of Volleyball Player

修士課程卒業 黄 淑儀

Background



Action Recognition

Game Data

- action type
- player posture
- motion feature

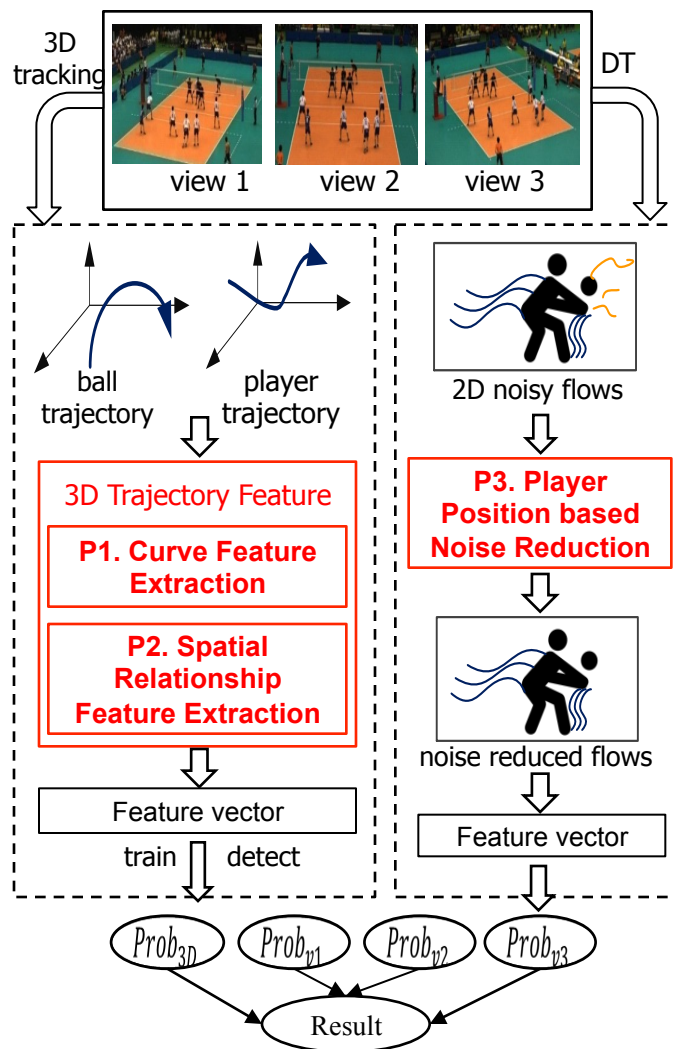
Sports Analysis

Problems in Volleyball Players Action Recognition

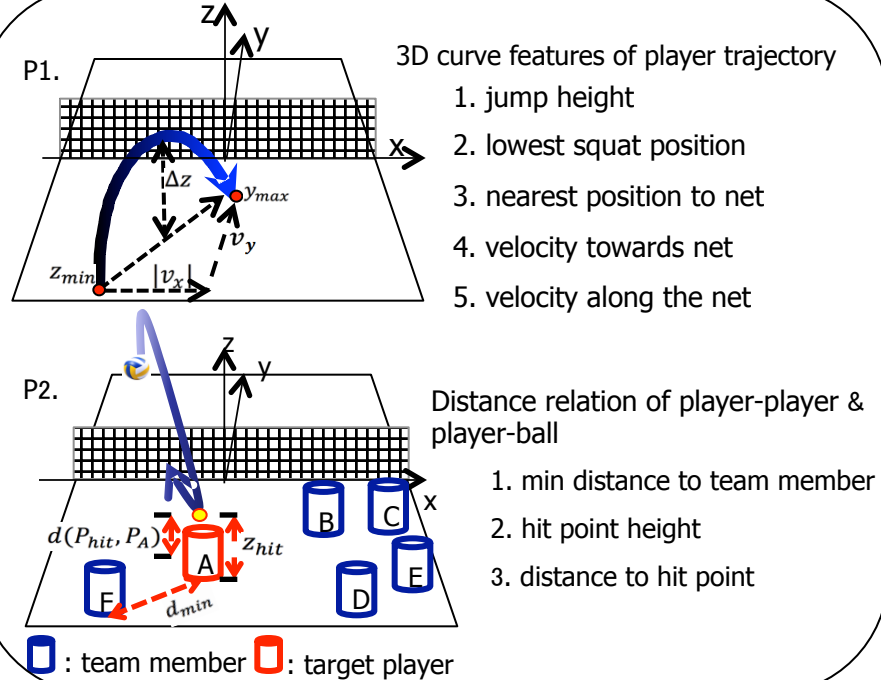
Features	Tennis	Volleyball
Occlusion	No (1 player)	Yes (6 players)
Background Noise	Yes	Yes
Viewpoint Variation	Yes	Yes
Intra-class Variation (Diversity in One Action Category)	Small	Large

Proposal

Framework



Global Coarse Motion Feature



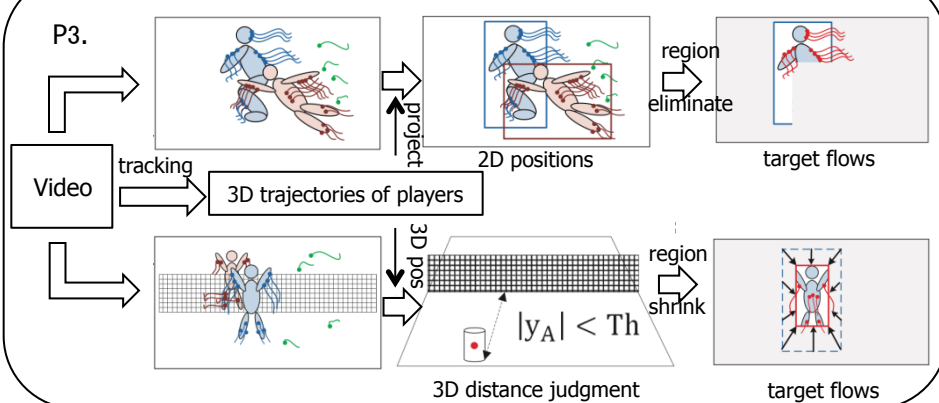
Problems to solve

Viewpoint Variation

Intra-class Variation

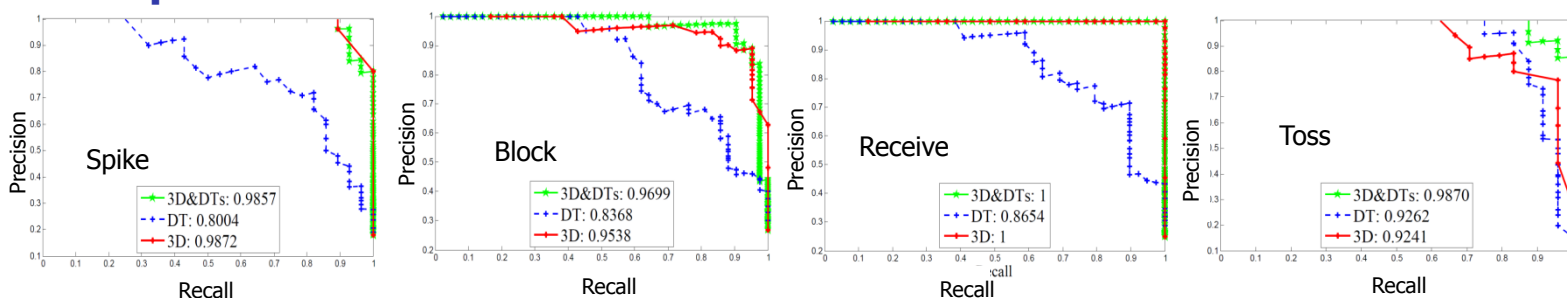
Occlusion

Local Detailed Motion Feature



Background Noise

Experimental Result



Conclusion Recognize actions of "Spike", "Block", "Toss", "Receive", with an accuracy of 98% for each by combining 3D trajectory curve feature & multi-view 2D local motion features



Graduate School of Information, Production and Systems
Waseda University