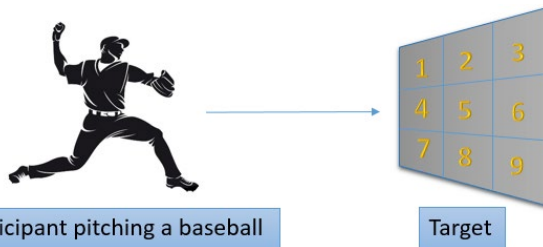


Improving Human Intention Prediction Using Data Augmentation

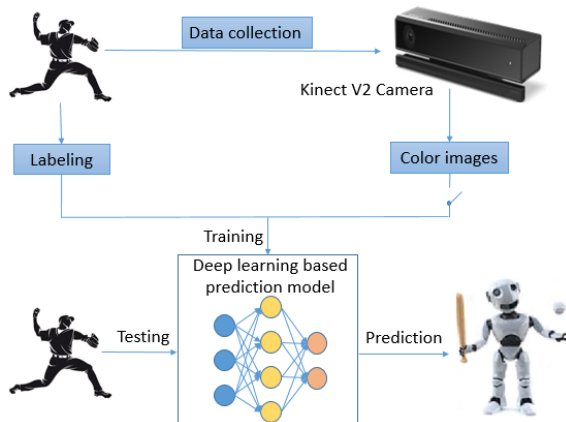
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Experiment Overview



Experiment Workflow



Training Data Overview

Data Augmentation Methods	Size of Data
Original image	14,080 frames 938 MB
1.Random contrast normalization	28,160 frames 1.88 GB
2.Random contrast normalization and Gaussian noise	42,240 frames 3.62 GB
3.Random contrast normalization, Gaussian noise and Gaussian blur	56,320 frames 4.93 GB
4.Random contrast normalization, Gaussian noise, Gaussian blur and crop (0, 10%)	70,400 frames 6 GB
5.Crop (0, 10%)	70,400 frames 4.8 GB
6.Crop (0, 20%)	70,400 frames 4.8 GB
7.Translation (-10%, 10%)	70,400 frames 4.8 GB
8.Translation (-20%, 20%)	70,400 frames 4.4 GB
9.Translation (-30%, 30%)	70,400 frames 4.4 GB
10.Piecewise affine and perspective transform	70,400 frames 4.9 GB



A complete pitching sequence

Testing Results

Data Augmentation Methods	Prediction Accuracy
Original image	50%
1.Random contrast normalization	47.2%
2.Random contrast normalization and Gaussian noise	41.7%
3.Random contrast normalization, Gaussian noise and Gaussian blur	38.9%
4.Random contrast normalization, Gaussian noise, Gaussian blur and crop (0, 10%)	55.6%
5.Crop (0, 10%)	75%
6.Crop (0, 20%)	61.1%
7.Translation (-10%, 10%)	66.7%
8.Translation (-20%, 20%)	61.1%
9.Translation (-30%, 30%)	50%
10.Piecewise affine and perspective transform	63.9%

