

Rotation-invariant Mixed Graphical Model Network for 2D Hand Pose Estimation

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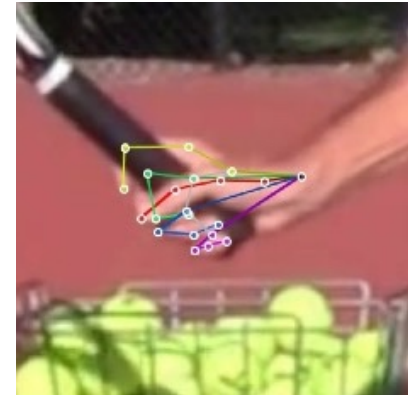
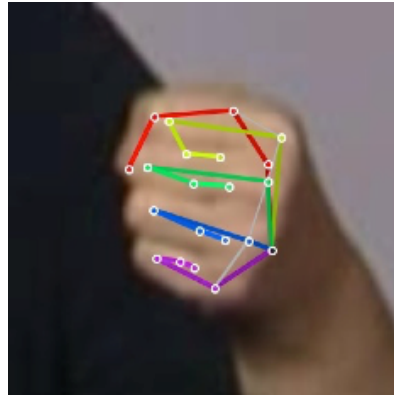
² Tencent Hippocrates Research Lab



Tencent 腾讯

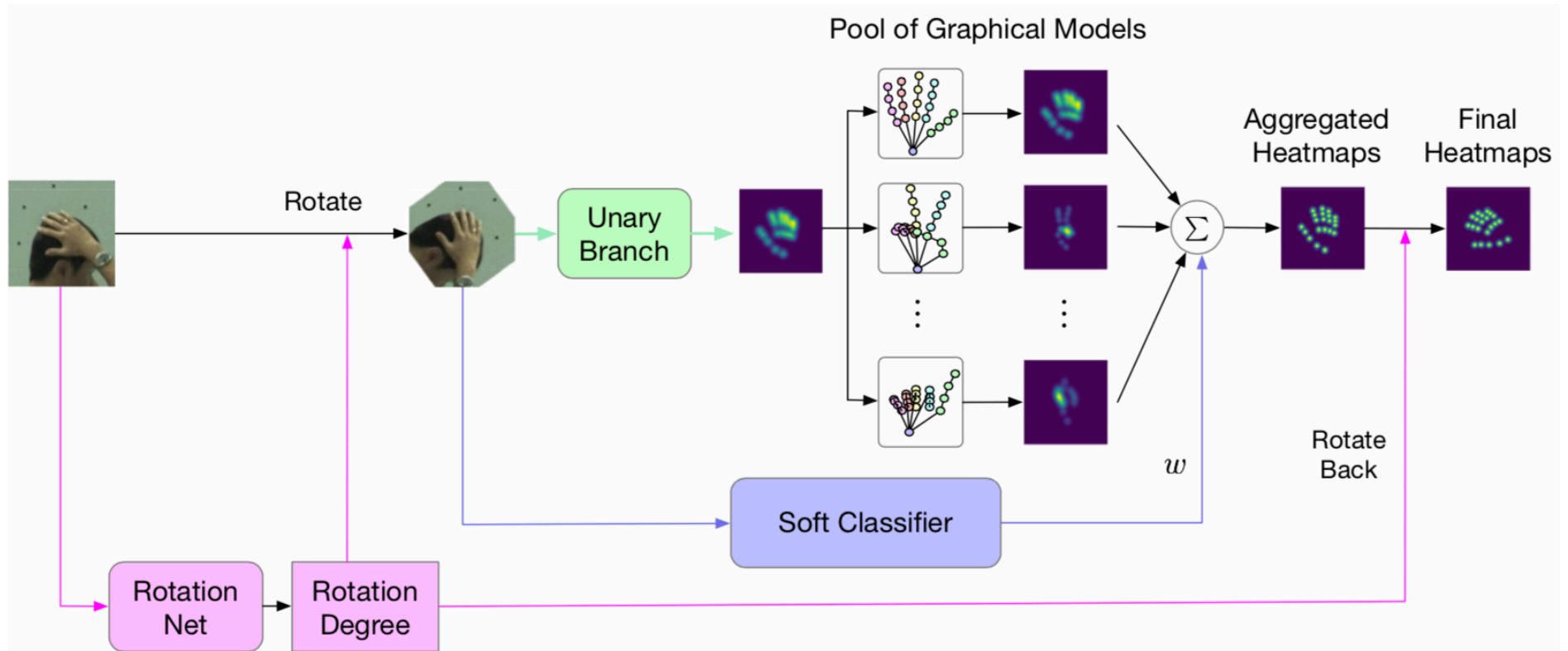
2D Hand Pose Estimation

- Application: AR/VR, HCI, gesture recognition ...
- Challenge: self-occlusion due to articulation, viewpoint and object



Tomas Simon, Hanbyul Joo, Iain Matthews, Yaser Sheikh, Hand Keypoint Detection in Single Images using Multiview Bootstrapping, CVPR 2017

Pipeline overview of the proposed R-MGMN



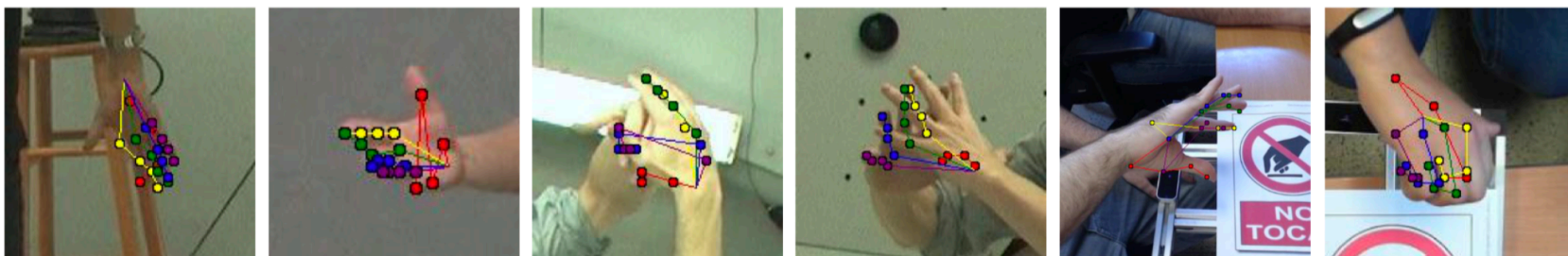
Quantitative Results

Results on CMU Panoptic Hand dataset

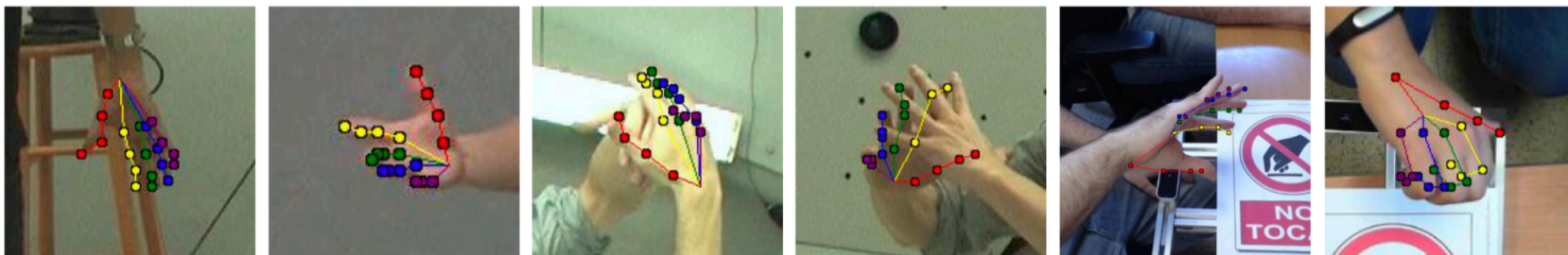
Threshold of PCK, σ	0.01	0.02	0.03	0.04	0.05	0.06	mPCK	improvement
CPM Baseline (%)	22.60	55.69	70.06	77.01	81.30	84.36	65.17	-
CPM + Single GM	22.58	55.78	70.14	77.05	81.34	84.41	65.21	0.04
CPM + Mixture of GMs	23.39	57.53	71.95	78.49	82.28	85.02	66.44	1.27
Rotaion + CPM ¹	22.70	57.91	72.95	79.94	83.90	86.71	67.35	2.18
Rotaion + CPM ²	21.97	57.59	74.53	81.98	86.21	88.83	68.52	3.35
R-MGMN	23.67	60.12	76.28	83.14	86.91	89.47	69.93	4.76

Qualitative Results

CPM



R-MGMN



Thanks!