

Algorithms extracting 3d hand skeleton

2023/09/20

1. V2V-PoseNet

Voxel-to-Voxel Prediction Network for Accurate 3D Hand and Human Pose Estimation from a Single Depth Map

- Summary: Voxel-to-Voxel Prediction Network for Accurate 3D Hand and Human Pose Estimation from a Single Depth Map"(CVPR2018)
 - Team SNU CVLAB, (Gyeongsik Moon, Juyong Chang, and Kyoung Mu Lee of Computer Vision Lab, Seoul National University) are winners of HANDS2017 Challenge
- https://github.com/mks0601/V2V-PoseNet_RELEASE

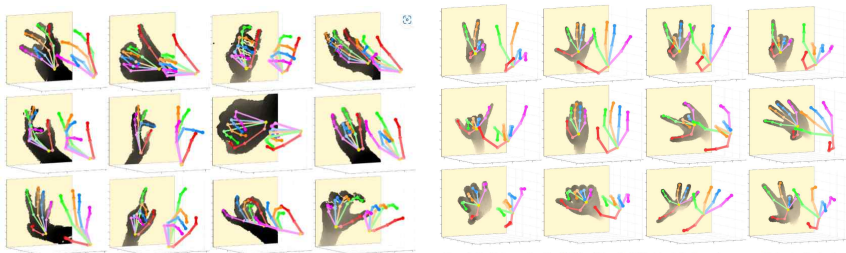
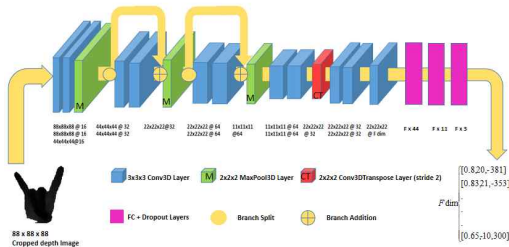


Figure 9: Qualitative results of the V2V-PoseNet on the ICVL dataset. Backgrounds are removed to be visually pleasing.

2. FastV2C-HandNet

Fast Voxel to Coordinate Hand Pose Estimation with 3D Convolutional Neural Networks

- Summary: Voxel-to-Voxel Prediction Network for Accurate 3D Hand and Human Pose Estimation from a Single Depth Map"(CVPR2018)
- Paper: <https://arxiv.org/pdf/1907.06327.pdf>
- GitHub: <https://github.com/RonLek/FastV2C-HandNet>

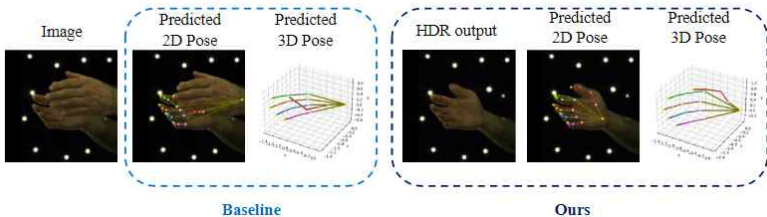


Methods	Total Training Time	Model Size
V2V-PoseNet [6]	12 hours	457 MB
FastV2C-HandNet (Ours)	7 hours	42 MB

Table 2: Comparison of the proposed method's (FastV2C-HandNet) total training time and model size on the MSRA Hand Dataset [19] with V2V-PoseNet [6].

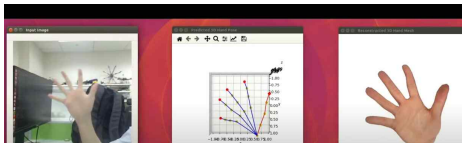
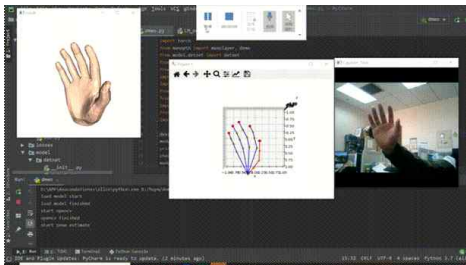
3. 3D Interacting Hand Pose Estimation by Hand De-occlusion and Removal(ECCV 2022)

- Paper: <https://arxiv.org/pdf/2207.11061.pdf>
- Summary: Official code and data for HDR
- GitHub: <https://github.com/MengHao666/HDR>



4. Minimal-Hand-pytorch(Unofficial)

- PyTorch reimplementation of minimal-hand(CVPR2020)
- Summary: Recognize gestures by extracting 3D coordinate values (coordinate value extraction may be useful)
 - Using “[Hybrik: A Hybrid Analytical-Neural Inverse Kinematics Solution for 3D Human Pose and Shape Estimation](#)”
- [https://github.com/MengHao666/Minimal-pytorch](https://github.com/MengHao666/Minimal-Hand-pytorch)



5. Real-Time-2D-and-3D-Hand-Pose-Estimation

- Summary: Extract 2d and 3d coordinates from hands real-time (Unofficial: Minnesota CSCI 5561 course)
- GitHub: <https://github.com/enghock1/Real-Time-2D-and-3D-Hand-Pose-Estimation>

