Endowing Rotation Invariance for 3D Finger Shape and Vein Verification

Hongbin XU, Weili YANG, Qiuxia WU,Wenxiong KANG

Frontiers of Computer Science,DOI:10.1007/s11704-021-0475-9

Problems & Ideas

- Problem of finger posture variations in finger vein verification.
  - Image distortion/Imaging different regions (Fig. 1)
- Ideas: Extracting rotation-invariant feature by explicitly recovering the 3D structure in finger vein verification.

  –We propose a silhouetted-based 3D finger vein reconstruction optimization model and corresponding accelerating strategies to obtain 3D finger point cloud with finger-vein texture.

  –We transform the rotation problem into a permutation problem with the help of a specially designed rotation group. Then, our proposed 3DFVSNet can extract rotation-invariant feature from the data.

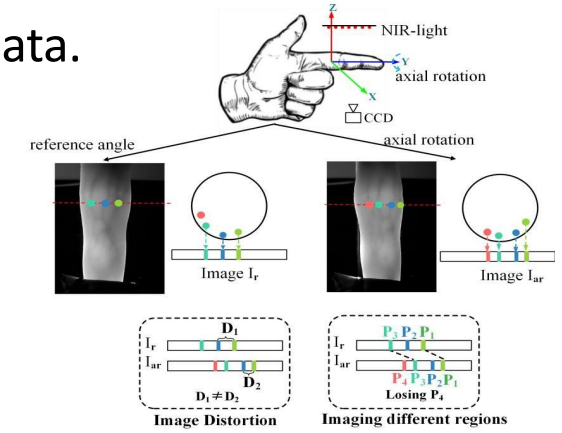
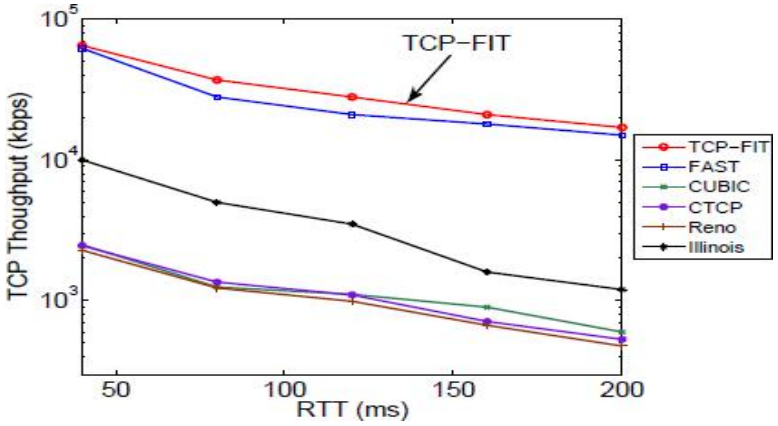


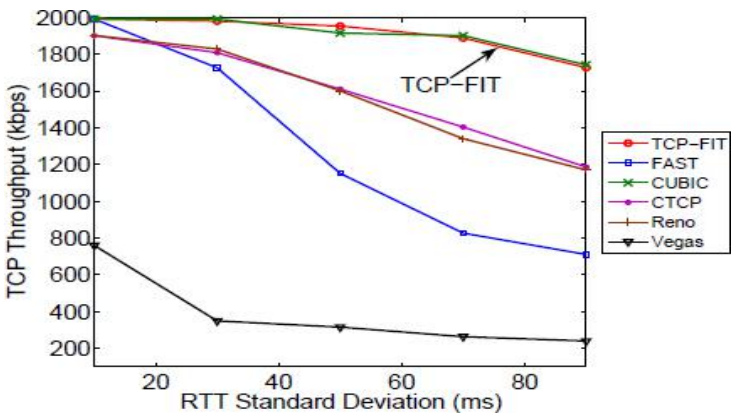
Fig. 1

Main Contributions

- **xxx**

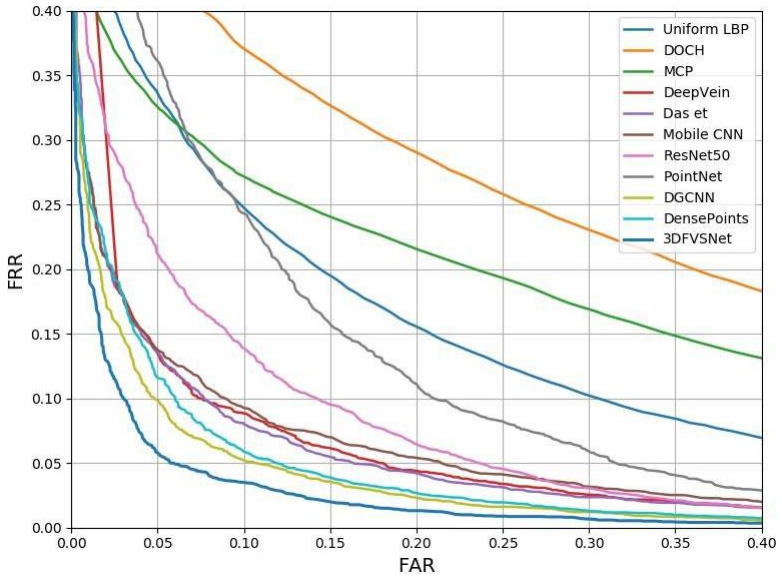


- **xxx**

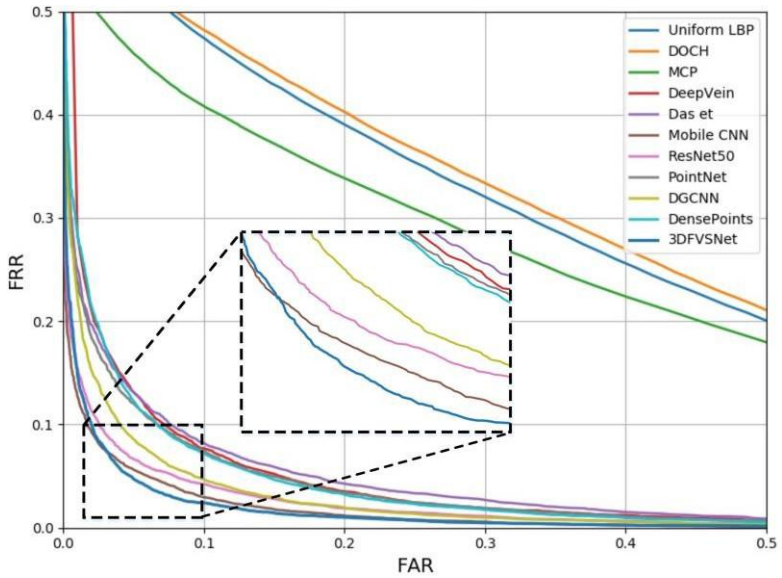


Main Contributions

- **The ROC curve of various algorithms evaluated on SCUT-3DFV-HR(hard rotation) benchmark.**



- **The ROC curve of various algorithms evaluated on SCUT-LFMB-3DPVFV-HR(hard rotation) benchmark.**



- **The experimental results on several 3D finger vein verification benchmarks demonstrate the superior performance of our proposed method towards rotation.**