

Supplementary Material to:
TractCloud: Registration-free Tractography
Parcellation with a Novel Local-global Streamline
Point Cloud Representation

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Table S1. dMRI acquisition parameters for five independently acquired testing datasets.

Dataset	dMRI acquisition parameters
dHCP	$b = 400/1000/2600 \text{ s/mm}^2$; 20 volumes with $b = 0 \text{ s/mm}^2$, 64 volumes with $b = 400 \text{ s/mm}^2$, 88 volumes with $b = 1000 \text{ s/mm}^2$, 128 volumes with $b = 2600 \text{ s/mm}^2$; $\text{TE/TR} = 90/3800 \text{ ms}$; $\text{resolution} = 1.5 \times 1.5 \times 1.5 \text{ mm}^3$
ABCD	$b = 3000 \text{ s/mm}^2$; 1 volume with $b = 0 \text{ s/mm}^2$, 60 volumes with $b = 3000 \text{ s/mm}^2$; $\text{TE/TR} = 88/4100 \text{ ms}$; $\text{resolution} = 1.7 \times 1.7 \times 1.7 \text{ mm}^3$
HCP	$b = 3000 \text{ s/mm}^2$; 18 volumes with $b = 0 \text{ s/mm}^2$, 90 volumes with $b = 3000 \text{ s/mm}^2$; $\text{TE/TR} = 89/5520 \text{ ms}$; $\text{resolution} = 1.25 \times 1.25 \times 1.25 \text{ mm}^3$
PPMI	$b = 1000 \text{ s/mm}^2$; 1 volume with $b = 0 \text{ s/mm}^2$, 64 volumes with $b = 1000 \text{ s/mm}^2$; $\text{TE/TR} = 88/7600 \text{ ms}$; $\text{resolution} = 2 \times 2 \times 2 \text{ mm}^3$
BTP	$b = 2000 \text{ s/mm}^2$; 1 volume with $b = 0 \text{ s/mm}^2$, 30 volumes with $b = 2000 \text{ s/mm}^2$; $\text{TE/TR} = 98/12700 \text{ ms}$; $\text{resolution} = 2.2 \times 2.2 \times 2.3 \text{ mm}^3$

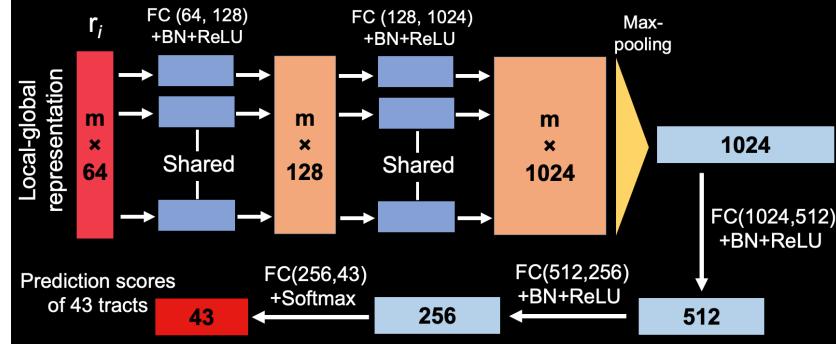


Fig. S1. The point-cloud-based network architecture of TractCloud using PointNet in our study. m is the number of points on a streamline. Abbreviations: FC, fully connected; BN, batch normalization; ReLU, rectified linear unit.

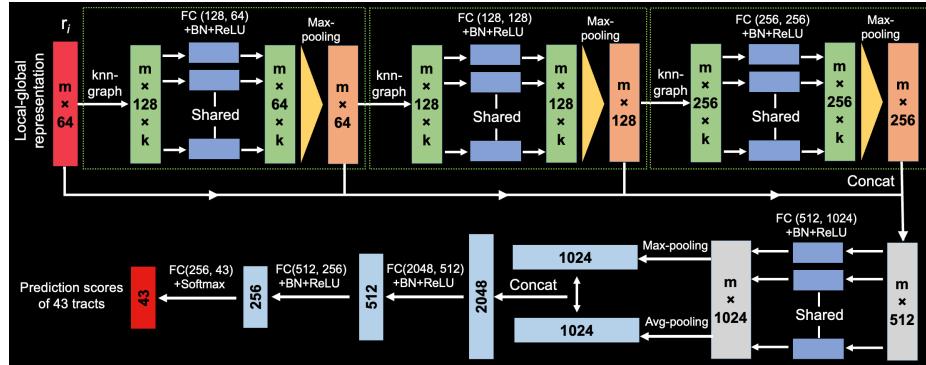


Fig. S2. The point-cloud-based network architecture of TractCloud using DGCNN in our study. m is the number of points on a streamline. Abbreviations: knn, k-nearest neighbors; FC, fully connected; BN, batch normalization; ReLU, rectified linear unit; Avg, average.