



find 2 types of points

	frame[i-1]	frame[i]	type
1	○	○ ⇒	head ○
2	○	○ ⇒	tail ○

$$p_i = \{x \mid x \in \text{Cluster}_i\}$$

$$n_i = \{y \mid y \notin \text{Cluster}_i, \exists x \in p_i \text{ such that } d(y, x) < \epsilon\}$$

$$h_i = \{z \mid z \in n_i \text{ in frame}_{i-1} \text{ and } z \in p_i \text{ in frame}_i\}$$

$$t_i = \{z \mid z \in h_i \text{ in frame}_{i-1} \text{ and } z \in n_i \text{ in frame}_i\}$$

$$\vec{v}_{\text{cluster}_i} = (\overline{h_i} - \overline{t_i}) \quad \overline{h_i}, \overline{t_i} \text{ are the mean points of } h_i, t_i$$