$P Point-Cloud Recognizer

The $P Point-Cloud Recognizer is a 2-D gesture recognizer designed for rapid prototyping of gesture-based user interfaces. In machine learning terms, $P is an instance-based nearest-neighbor classifier with a Euclidean scoring function, i.e., a geometric template matcher. $P is the latest in the dollar family of recognizers that includes $1 for unistrokes and $N for multistrokes. Although about half of $P's code is from $1, unlike both $1 and $N, $P does not represent gestures as ordered series of points (i.e., strokes), but as unordered point-clouds. By representing gestures as point-clouds, $P can handle both unistrokes and multistrokes equivalently and without the combinatoric overhead of $N. When comparing two point-clouds, $P solves the classic assignment problem between two bipartite graphs using an approximation of the Hungarian algorithm.

This is an adaptation of the original C# code for working with Unity.

In the demo, only one point-cloud template is loaded for each of the 16 gesture types. You can add additional templates as you wish, and even define your own custom gesture templates.
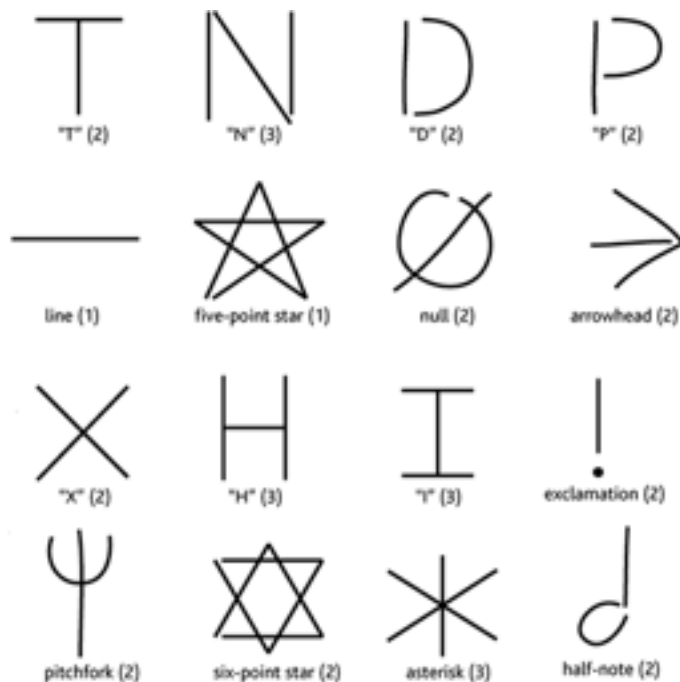
<u>Setup :</u>

Import the package via Unity Asset Store. You will get a PDollar folder with a demo. An explanation of what you will get in the sub-folder :

- Prefabs : One prefab named *GestureOnScreen* which is basically a *Line Renderer* for displaying user gesture.
- Resources : 16 pre-made gestures saved as xmls.
- Scene : The demo scene.
- Scripts : The demo script and the PDollar algorithm.

The *Demo Script* is attached to the *Main Camera* and the prefab *GestureOnScreen* must be linked to this *Demo Script*.

<u>Features :</u>
Using the PDollar algorithm you can recognize features with multi-strokes and register new one. You can register new gestures running Unity demo directly or on mobile. They will be saved at [Application.persistentDataPath](). Note you can't save the xml generated on Unity Web Player.

Support & issues : https://github.com/DaVikingCode/PDollar-Unity
Contact : hello@davikingcode.com