Kneed

A library to find the elbow or Knee or maximum curvature in the given dataset.

Installation:

1. pip:

pip install kneed

2. anaconda:

conda install -c conda-forge kneed

API Reference:

1. DataGenerator : Generate synthetic data to work with kneed.

2. KneeLocator : It attempts to find the elbow/knee on a line. The knee is accessible via the .knee attribute.

from kneed import DataGenerator, KneeLocator

```
from kneed import DataGenerator, KneeLocator
x, y = DataGenerator.figure2()
print([round(i, 3) for i in x])
print([round(i, 3) for i in y])

[0.0, 0.111, 0.222, 0.333, 0.444, 0.556, 0.667, 0.778, 0.889, 1.0]
[-5.0, 0.263, 1.897, 2.692, 3.163, 3.475, 3.696, 3.861, 3.989, 4.091]

# The knee point returned is a value along the x and y axis. It can be identified as:

kneedle = KneeLocator(x, y, S=1.0, curve="concave", direction="increasing")

print(round(kneedle.knee, 3))
0.222
print(round(kneedle.elbow, 3))
0.222
print(round(kneedle.knee_y, 3))
1.897
# Normalized data, normalized knee, and normalized distance curve.
kneedle.plot_knee_normalized()
# Raw data and knee.
kneedle.plot_knee()
```