

# Make the Reachy robot able to write

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## MOTIVATION

Reachy is a humanoid robot which is equipped with two 7 degrees of freedom arms and grippers “Otis”, thus it is physically capable to hold a pen and write. In this project, we would like to make Reachy to write in real life.

Plus, since Reachy has the talent to be social and interactive, we would like it to use its writing skill to interact with people.



## METHODS

In this project, we use a graphics tablet (hereafter Wacom) for handwriting data acquisition. To make Reachy write, I have implemented the basic functionalities to :

- Preprocess the writing data so that it can be used for Reachy
- Send motor commands to Reachy to write

Then, a handwriting analysis will be done to reduce the writing duration while keeping a good writing quality.

Finally, we would like Reachy to be able to recognize the writing letters, thus I have implemented three classifiers based on the computer vision approach and machine learning approach.

## RESULTS

With the implemented functionalities, Reachy is able to draw or write on the paper what we draw on the Wacom. The writing duration for each letter can be reduced to 4-8 seconds with a good writing quality.

Thanks to the letter recognition classifiers, Reachy can also recognize some letters and write its response on the paper.