

# Task 1

Image Feature Extraction Techniques

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**Description**

# Steps

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1. Separate area with one character (letter or digit). You can assume that character consist of continuous (connected) series of pixels.
2. Extract character.
3. Normalize character.
  - a. Use morphological filter to get skeleton of character.
  - b. Use PCA to get new coordinates.
  - c. Rotate image to align new coordinate system with image edges.
  - d. Scale it to fill the entire frame.
4. Find character descriptor.

# Steps - some details

Use PCA to get new coordinates

Rozdział 18.3.1 Analiza głównych składowych, z:

Piotr Fulmański, Marta Grzanek, *Sztuczna inteligencja. Podręcznik do wykładów i ćwiczeń*

ai.pdf

You can find this file here:

[https://fulmanski.pl/zajecia/sztuczna/zajecia\\_20152016/index.php](https://fulmanski.pl/zajecia/sztuczna/zajecia_20152016/index.php)

More details about PCA you can find here:

[https://fulmanski.pl/zajecia/nlp/zajecia\\_20202021/index.php](https://fulmanski.pl/zajecia/nlp/zajecia_20202021/index.php)

reading *Math behind NLP* presentation.