Team20 Proposal Report

* **Members**

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* **Paper title**

Character Recognition under Severe Perspective Distortion

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* **Motivation**

When we were buying groceries and cosmetics product, the ingredient lists on the back of these product are often hard to understand for ordinary people without chemical engineering background. Therefore, developing a OCR system capable of detect the texts listed in the back of product containers of all shapes serves as a preprocessing step for an application aiming to help user understand the ingredient list. However, a typical image of product container taken by a smartphone can contain geometric and photometric distortion. Our algorithm aims to remove these distortion and detect the texts correctly.

* **Problem definition**

Photos of cosmetics taken by mobile phone, because of the angle, the texts listed on the cosmetics will be distorted

* **Algorithm used**

Cross Ratio Spectrum and Dynamic Time Warping

* **Expected results**

Our goal is to remove these distortion and detect the texts correctly.So that we can make the texts listed on the product appear more clearly

* **Other references**

[1] Christian Simon,Williem. Correcting geometric and photometric distortion of document images on a smartphone

[2] Yusuke TAKEZAWA, Makoto HASEGAWA, Salvatore Tabbone. Camera-captured document image perspective distortion correction using vanishing point detection based on Radon Transform

[3] Changsong Liu ,Yu Zhang ,Baokang Wang , Xiaoqing Ding. Restoring camera-captured distorted document images

[4] Mi-Ae Ko,Young-Mo Kim. A simple OCR method from strong perspective view

[5] Yuandong Tian and Srinivasa G. Narasimhan. Globally Optimal Data-Driven Approach for Image Distortion Estimation

* **Reference material**

[1]<https://www.spiedigitallibrary.org/journals/Journal-of-Electronic-Imaging/volume-24/issue-1/013038/Correcting-geometric-and-photometric-distortion-of-document-images-on-a/10.1117/1.JEI.24.1.013038.full?casa_token=vZTkTTMngAkAAAAA%3aaPzFeeZyFRZTTVGdBG_j2g_Ek9FDyChFiKz8aVGw2-vJ3HWh9hnifxvhcXLsBO2pyWz7pvzp_II>

[2]<https://ieeexplore.ieee.org/abstract/document/7900254>

[3]<https://link.springer.com/article/10.1007/s10032-014-0233-8>

[4]<https://ieeexplore.ieee.org/abstract/document/1409704>

[5]<https://ieeexplore.ieee.org/abstract/document/5539822>