

Report za letný semester

Za tento semester som navrhoval dizajn a ďalšie funkcionality pre aplikáciu na porovnanie zdanlivo podobných obrazov. Keďže základná aplikácia je už navrhnutá a funguje ako prototyp, dodatočné funkcie musia byť implementované tak, aby sa nenarušil už existujúci program.

Medzi tieto funkcie patria:

- samostatné menu ovládania pre obe obrázky
- posúvanie priblížených obrázkov v pracovnom okne
- vyznačovanie/kreslenie na obrázok v pracovnom okne

Medzi úpravy a vylepšenia kódu patrí:

- prerobenie funkcie zoom
- prerobenie pracovných okien

Tieto zmeny by mali byť v čo najlepšej kvalite implementované do SVK. Momentálne sa na doladovaní a testovaní tejto funkčnosti sa ešte pracuje. Taktiež ešte prebiehajú konzultácie o vývoji tejto aplikácie. Táto aplikácia bude taktiež schopná spracovať dáta uverejnené v časopise Sensors (link: <https://www.mdpi.com/1424-8220/23/4/2303/htm>). Ukážka stavu aplikácie:



Pripravujeme prezentáciu na SVK 2024, aktuálna verzia rozšíreného abstraktu je v prílohe na nasledujúcej strane.

Differentiation of apparently identical images, comparison of CRUSE scanning modes

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1 Introduction

We differentiate seemingly identical images for unskilled scanner workers, scanned under different lighting conditions. To help with finding differences we introduce appropriate points and edges for visualization of the differences.



Figure 1: Example of scanned picture.

2 Creating a software for comparing images

The CRUSE scanner supports different types of scanning. Some are more useful for certain purposes than others, depending on what they are to be used for. The output images from scanner CRUSE are in very high-resolution which we don't want to lose.

For this project we used OpenCV which however doesn't have necessary functions built in. For this reason, we had to create our own functions. We are also implementing this into Windows Forms, which is used to create user interface.

Upon turning on the program we select 2 images from the computer which will be compared. User will be warned in case they select the same image. Following is a window on which the selected images are displayed. Because the images are very detailed, we want to display as much as we can. For this reason, we first check the orientation of the image. If the image is wider than it is high, we rotate it by 90°, otherwise the image remains in its original orientation.

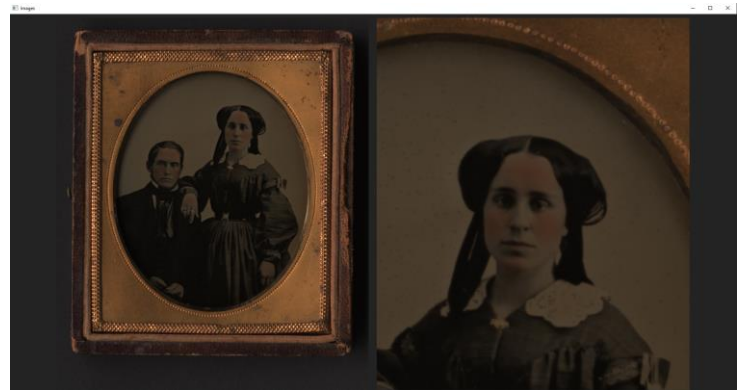


Figure 2: Application with one of the images zoomed in on.

Next we calculate positions where the images will be positioned and we rescale them, while keeping original ratio between width and high.

Users can zoom in on the specific part of each image by clicking the left mouse button. Additionally, by clicking the right mouse button they can return to original state of image. For zoom we don't use already resized image, but rather the original one and because of this, our calculations for ROI (Region Of Interest) work with the parameters of the original image. By pressing Escape button, users can return back to selection of images and change desired image, while the software retains previous selection.

3 Conclusion and Future Work

We are to implement more functionalities for working with and comparing images. These functionalities will then have to be added to the User guide.

References

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