Contract (Draft)

for

Towards NEFI 2.0

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Introduction

NEFI (Network Extraction From Images) is a software developed for extracting graph from images that have networks. The main concept of NEFI 2.0 is to better build the previous version such that will be easier improve the software in the future and to fix some functions that already are implemented.

NEFI is based on 4 main classes: Preprocessing, Segmentation, Graph detection and Graph filtering. These classes constitute the 4 step of the pipeline that have as input the image with the networks and as output the graph of the networks.

Every classes have technical algorithms for the image processing and these algorithms must not will be reimplemented because in the previous version of the software it has been verify that works great and the output graphs is well extracted from the image. Understand how the application and the pipeline works will be useful to focusing on the software engineering part of this project.

A main characteristic of NEFI is that must be user friendly to a non-specialized target of user, it must have an intuitive GUI that the user can easier understand. The final user influence also the platform that the software are implemented for, because the user have mainly machine with Windows and Linux as OS, so NEFI 2.0 will be developed for this OS and will fix the bug with multifreezing in Windows. An important point is that must work with open source platform also.
In the previous version if the final user want to change a step of the pipeline the system recomputed the whole pipeline, with a big use of resource and obviously this is the costly function of the software. NEFI 2.0 must recompute the pipeline from the chosen point decided by the user that will be able to also to apply filter manually.

Furthermore, the system must be project such that will be possible to add a new step in the pipeline so it will be easy to add component at the project to improve its functionalities. Moreover, we must have a Toy-model for the pipeline and focusing on how to build it and how to better projected the actual software with the use of dedicated pattern. The toy-model will be useful also for advanced contributors, which need to understand easily the complete flow and it will be easier for them to extend it.

Other important point that will be develop for NEFI 2.0 are that the software may have an install script for every platform, with the resolution of all the dependencies that it need and may implemented a batch command line interface. Moreover, it may have a function that will be able to apply a filter to a folder.

Contract for Towards NEFI 2.0

MUST BE

The system must be user friendly to a Non-specialized target, It must have an intuitive GUI that final user can easier understand.	
The system must processing an input image through 4 step (Preprocessing, Segmentation, Graph Detection and Graph filtering) and give as output a graph that the final user can analyze.	
The final user can try to change every single step of the processing and the system must recomputed the image from that chosen point and not the whole pipeline.	(now recompute the whole pipeline with a big cost of resource)
The final user must apply filter manually.	
The system must be implemented for Windows and Linux because are the most OS utilized by the final user.	(multithreading freeze in windows)
Must work with an open source platform.	
The system must have a Toy-model for the pipeline	
It must be possible to add other components at the pipeline.	
It must have the possibility to apply changes at the text file with settings of the pipeline	

MAY BE

The project may have a install script for every platform	(Resolve dependencies also for Windows)
The software may apply filter to a folder	
May implement a batch command line interface	

MUST NOT BE

The technical algorithms must not be reimplemented because there is not problem with them and they works great.	