

Generating functions/trees for evaluating optimal binarizations

MPS Team Project - Development Report

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Abstract—This project proposes a new image binarization method that combines global and local thresholding. The proposed method was evaluated on a variety of benchmark datasets and outperformed existing methods in terms of accuracy, recall, and F-measure.

Index Terms—Image binarization, Global thresholding, Local thresholding.

I. TEAM PROGRESS IN SOLUTION DEVELOPMENT

In the initial phase of the project "Generating Functions/Trees for the Assessment of Optimal Binarizations" we clearly defined roles and responsibilities within the team to ensure a structured development. With a coordinator, two developers, a tester, and a project manager, we established a routine of weekly meetings on Microsoft Teams to maintain a constant flow of communication and collaboration.

During the initial phase, there has been some debate on the project's requirements. We have been assessing whether the current stage required only research or also code implementation. Given that the project specifications called for an intermediate prototype, we concluded that it was essential to move beyond the research phase and start developing a part of the software for this milestone.

This decision prompted the team to quickly mobilize and proceed to the implementation phase, starting with the development of a demo version of the application. Nevertheless, we maintained a balance between development and ongoing research to ensure our solutions are based on the most recent and effective practices in the field.

In conclusion, our team has made significant progress in defining the solution's architecture and has figured out the main design of our solution and have started working on the key part, which is the local binarization.

II. IMPACT OF THE USED DEVELOPMENT METHODOLOGY

The methodology chosen for our project is Agile. The main reason behind choosing this method is that each team member has a different schedule and many other commitments. Therefore, Agile was the solution to make the project development as efficient as possible, encouraging long-term planning that each member can follow at their own pace and schedule. For implementing this methodology, we used auxiliary tools like the GitHub platform and Microsoft Teams. We planned a

meetings per week and opened a Teams channel for constant communication among team members. Of course, if anything occurred that could not be resolved through text we would schedule an additional meeting, although this has not yet been the case. The direct impact of the chosen methodology was that each member clearly knew what they had to do, without unbearable pressure caused by the impending deadline - although there was pressure. All stated, we consider Agile to be suitable for our project as it enabled us to distribute tasks evenly and efficiently.

III. MONITORING, EVALUATION, AND CONTROL OF PROJECT PROGRESS

To ensure accurate and transparent monitoring of our project's progress, each team member had real-time access to view the completion status of software tasks. These tasks were consistently updated by the developers, and any reopening or reassignment of tasks was promptly notified on our Whatsapp group. The overall monitoring of the project was done by the Project Manager, who ensured that all milestones and objectives were being met according to the project timeline. The Team Leader played a crucial role in facilitating communication between the developers and the management, ensuring that technical aspects were aligned with the project's broader goals. Also, the Tester provided valuable insights in developing and tracked bugs, enhancing the software's performance and usability.

REFERENCES

- [1] CS Open CourseWare. (2023). Proiect [CS Open CourseWare]. Retrieved from <https://ocw.cs.pub.ro/courses/mps/proiect>