Image Processing Labs

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Organization

- 5 Lab sessions (24/03, 31/03, 28/04, 05/05, 12/05)
  - Programming Languages:
    - Matlab (Recommended)
    - Python
  - Submit all exercises at the end of this semester (23/05/2025, 23:59), the final project grade +1.

- Teaching Assistant team
  - Yangxintong Lyu, Xinxin Dai, Ran Zhao, Olivier Ducastel
  - Office location: Pleinlaan 9, 2.35/2.36
  - Office hour: Wednesday, 13-14pm
  - Email: {lyangxin, xdai, rzhao, oducaste}@etrovub.be
  - **Please send us email before you come!!!**

Project

- Group Project – 3 students per group
- 40% of the final score
- Evaluation
  - Project report (score per group) – 25%
    - Each group submits **ONE** report
    - **2000** words typical, **4000** words max
    - Use **IEEE conference paper** as a template
    - Sections **(obligatory):** Introduction, Description of your algorithm, Experimental results, Conclusions, References, Appendix (listing briefly what each student did within the group).
    - **Failing to comply with these guidelines reduces your project grade by 2 for each of these**
  - Code (score per group) – 35%
  - Oral defence (individual score) – 40%

Project

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- 40% of the final score
- Evaluation
  - Project report (score per group) – 25%
  - Code (score per group) – 35%
    - You should use **Matlab, C/C++ or Python** for your implementation, unless other method is proposed.
    - You have to write your own Matlab (or C/C++/Python) code. Existing code may be partially used only if you completely understand how it works and what each line of code does; **this has to be appropriately acknowledged in the project and the report**.
    - **Directly copying existing code from external sources without acknowledgement disqualifies the project, leading to a project score of 0 for the entire group.**
  - Oral defence (individual score) – 40%

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- 40% of the final score
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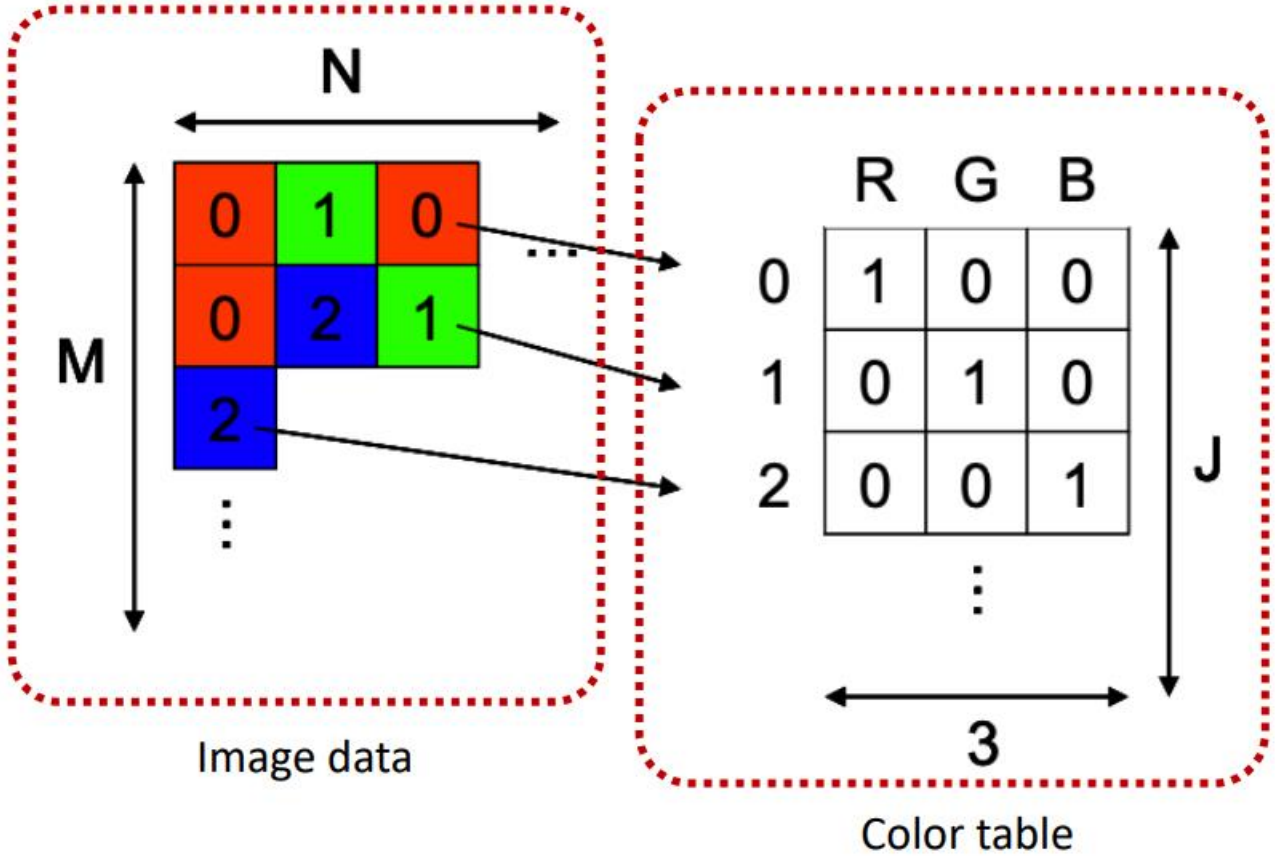
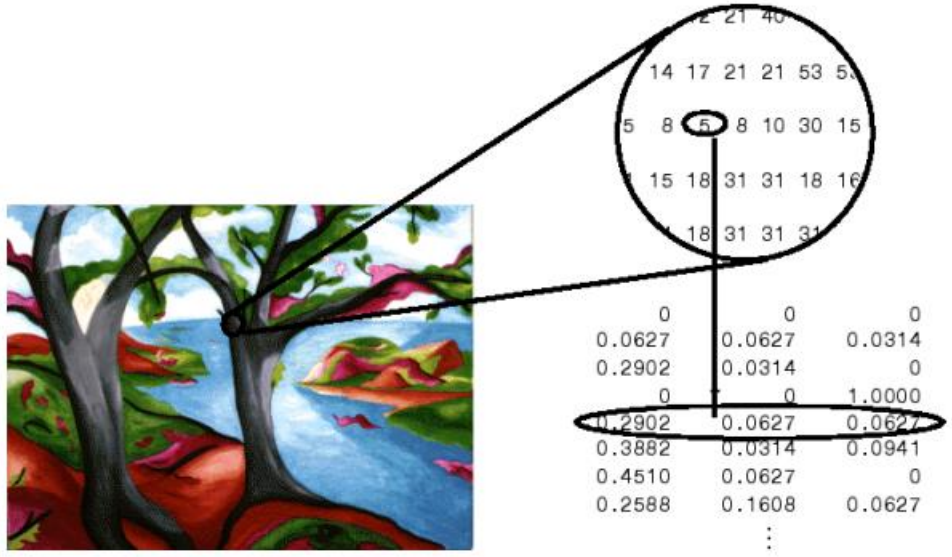
  - Code (score per group) – 35%
  - Oral defence (individual score) – 40%
    - The oral presentation (~15 mins) and Q&A (~10 mins) will be done in groups with a single Power point presentation on the day of the exam.
    - Your score will be based on your understanding of the image processing techniques you used in your project.
  - **Bonus targets are entirely optional and will lead to bonus points when completed**

Project

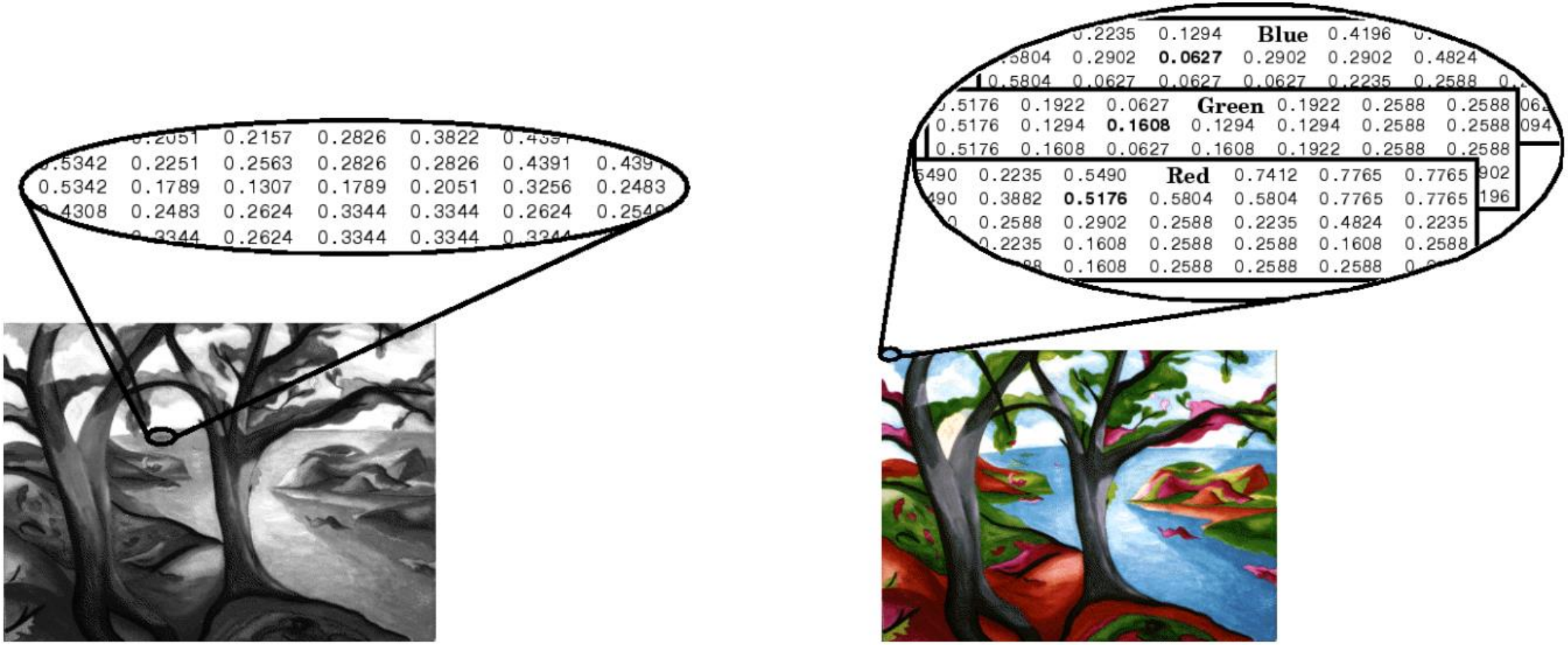
- Submission
  - End of the semester TBA: PDF + code in a zip file to lyangxin@etrovub.be, xdai@etrovub.be, rzhao@etrovub.be, oducaste@etrovub.be
  - **After-deadline-submission (< 24h): your project grade will be reduced by 2**
  - **After-deadline-submission (> 24h): 😕 😕 😕 0 in the first session and resubmit in the second session**

Ex1 – Indexed images



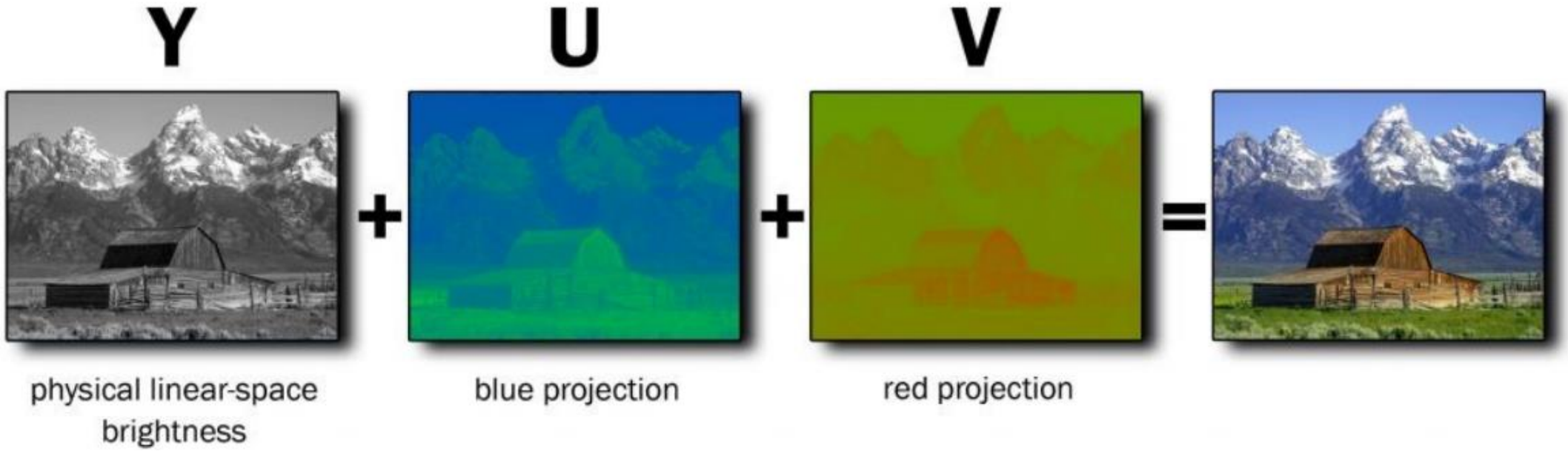


Ex1 – Greyscale and RGB images

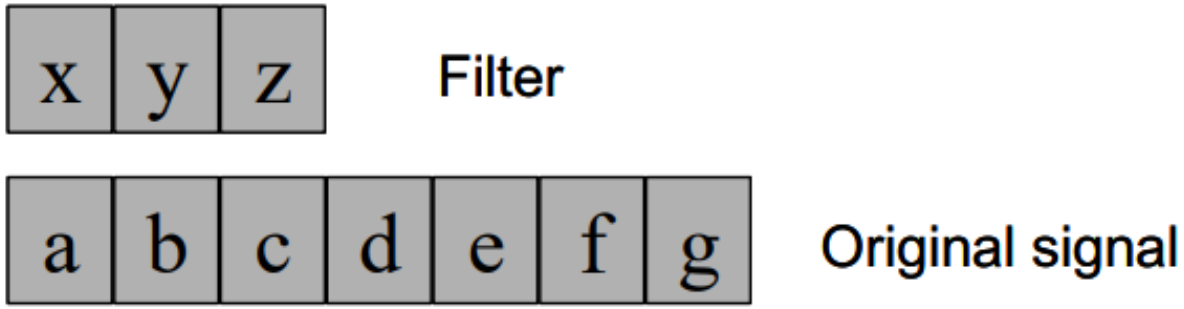


Ex1 – YUV color space

- Y – luminance component
- U – blue projection
- V – red projection

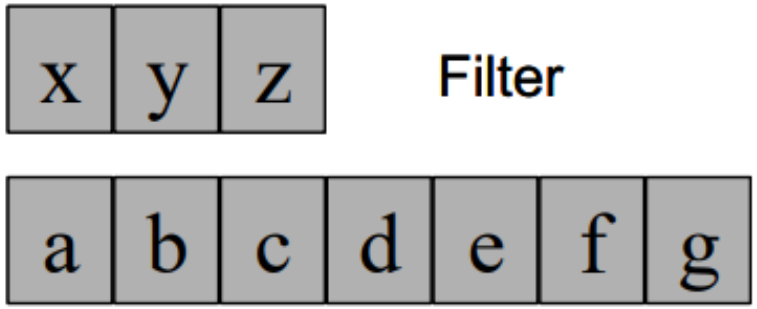


Ex3 – 1D Filtering



Filtered signal???

Ex3 – 1D Filtering



Filtered signal???