Term Project: Compression of Stereo Image Pairs

Goals

- Develop and implement the most efficient compression scheme
- Minimize average bit-rate over 7 unknown test image pairs
- Reconstruction PSNR at least 37 dB for each image
PSNR Calculation

- RGB to YCbCr conversion
- Down-sampling Cb and Cr components by two
- Distortion = Mean Squared Error (MSE) between original and decoded image pairs across YCbCr components
  → less emphasis on Cb and Cr distortion
- PSNR = \(10 \log_{10} \left( \frac{255^2}{\text{MSE}} \right)\)
- Penalty for PSNR < 37dB → Include uncompressed image pairs’ size in bit-rate calculations
Final Project - General

- Work in groups of 2-3 students, 50 hours per person
- Let us know who is in your group by Fri, Feb 17
- Final submission includes MATLAB code, presentation slides and project report
- Algorithms must be implemented from scratch – o.k. to use code of others for comparison, but not for submission
- Presentations and reports will be posted online
- Project grade based on
  - Originality, technical quality 25%
  - Competitive performance 25%
  - Project report 25%
  - Class-room presentation 25%
Project Submission

- MATLAB code  **Deadline: Mon, Mar 12**
- Presentation slides  **Deadline: Wed, Mar 14**
- Project report  **Deadline: Thurs, Mar 15**

- Class-room presentations on **Thurs, Mar 15**
- More details and guidelines on presentations to be announced later
Project report

- Should be submitted as pdf
- 2000 words typical, 4000 words max., not including references
- Use IEEE conference paper as model
- Include graphs, pictures, and references
- Groups submit ONE report, with a break-down of who did what as an appendix to the report.
- Details of submission → Check website