Generative Adversarial Networks for Automatic Image Colorization

Team: Yet Another Layer - YAL

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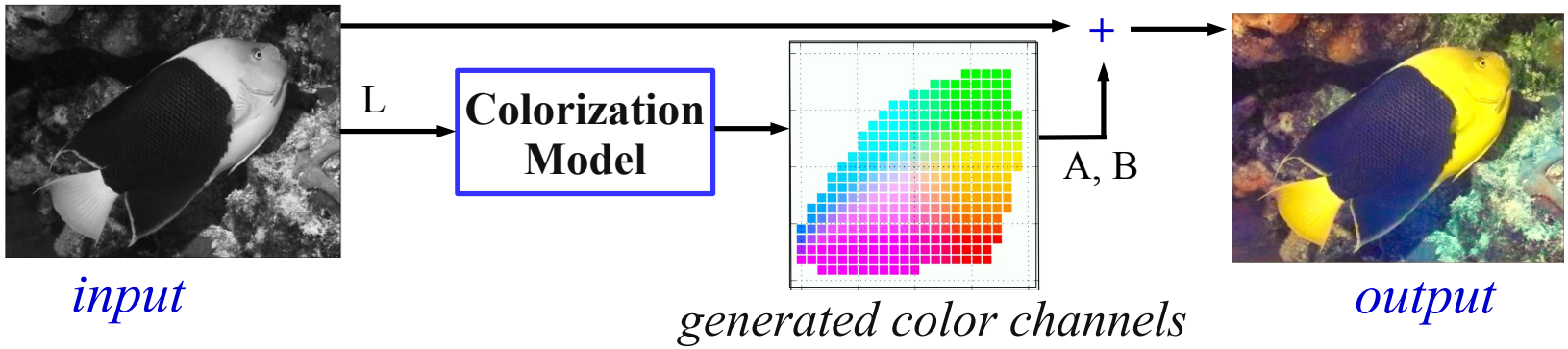
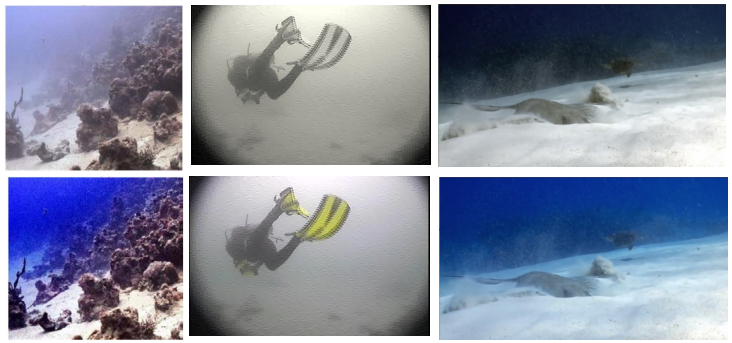
Image Colorization

Problem: produce a *realistic* coloring of gray-scale images



Applications

Colorizing old photos and movies



Colorizing underwater images

Figure sources: [1], [2], [3]

Background

- Algorithmic choices:
  - **Image-to-image translation**
  - Classification
- Domain choices:
  - **LAB**, RGB
- Approaches
  - Classical
  - Deep learning based
    - Generative models
    - **Adversarial model**

References

1. Richard Zhang, Phillip Isola, and Alexei A Efros. Colorful image colorization. In European Conference on Computer Vision, pages 649666. Springer, 2016.
2. Huimin Lu, Yujie Li, and Seiichi Serikawa. Underwater image enhancement using guided trigonometric bilateral filter and fast automatic color correction. In Image Processing (ICIP), 2013 20th IEEE International Conference on, pages 34123416. IEEE, 2013.
3. Luz A Torres-Mendez and Gregory Dudek. Color correction of underwater images for aquatic robot inspection. In International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, pages 6073. Springer, 2005.