Creating new image backgrounds using conditional GAN models

COMP 8755 Individual Project – Initial Presentation
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Background

• Small dataset is a bottleneck of many Deep Learning problems.

• Traditional data augmentation – limitation
  • Position: scaling, cropping, flipping …
  • Color: brightness, contrast, saturation …

• Data augmentation in a more flexible way – manipulating background

• Inspiration:

Methodology

• Segmentation map generation + style imposing and image synthesis
Current outcome

• Fully built stage-1 GAN.
• Proof of concept
  • Single scene class input - ADE20K 2016 beach images.
• Exploring encoding methods for segmentation map.
• Stage-1 GAN output not stable.
Next step

• Comparing different segmentation encoding methods
  • One-hot
  • Semantic class number
  • RGB classifier
• Stage 2 style imposing
• Input data containing more complex scene/object classes