RECALL: Replay-based Continual Learning in Semantic Segmentation
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Abstract
Deep networks forget old tasks when learning new ones. We focus on class incremental continual learning (CL) in semantic segmentation.

We exploit two data replay strategies:
- Gan (BigGan)
- Web (Flickr)

Our Approach (RECALL)

- We use replay data via generative models or web-crawling to alleviate catastrophic forgetting
- We address the background shift by a self-inpainting scheme

Results

Visual Results on Pascal VOC2012

Conclusion
- Replay data to alleviate forgetting in class-incremental learning:
  - GAN (BigGan)
  - Web crawler (Flickr)
- Self-inpainting to handle the background shift
- RECALL outperforms state-of-the-art methods
  - Especially when multiple incremental steps are performed

Code available: https://github.com/LTTM/RECALL