Class-Incremental Learning with Topological Schemas of Memory Spaces

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Problems of distillation-base methods in *Class-Incremental Learning* (CIL):

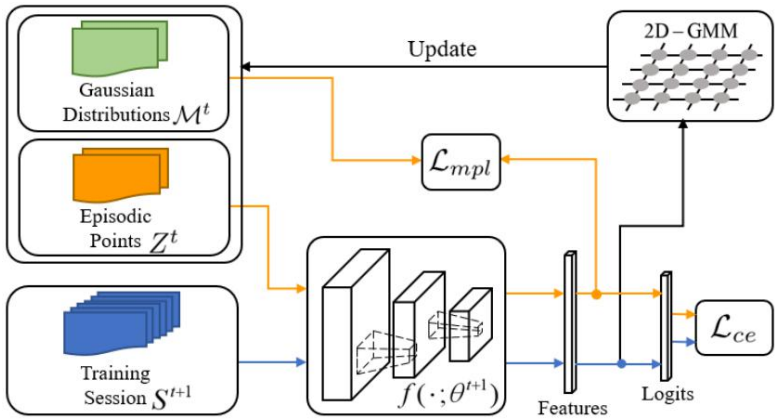
- The quality of the exemplars is not guaranteed.
- Model tends to overfit to the old class exemplars.
- The CNN model also suffers from the 'bias' problem.

Motivation

we propose a novel CIL framework, named the *topological schemas model* (TSM).

- A novel **2D-GMM** and **CEM** for 2D-GMM training.
- *Memory preservation loss* (**MPL**)

Framework



$\mathcal{L}_{ce}$: cross-entropy loss term

$\mathcal{L}_{mpl}$: memory preservation loss term

Results