Actively Preventing Negative Transfer

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**Problem – Negative Transfer in Computer Vision**

- Weights and biases learned by deep learning models in a source domain, may negatively affect its ability to learn effectively in a new domain – think muscle memory.

**Related Works – Domain Guided Dropout**

- Analyze “impact” of neurons in a target domain, drop them and retrain if they negatively impact the model’s ability in the target domain.

**Proposed Solution**

- Expand and improve this "impact" analysis and prune method to all layers of the network.

**Goals**

- Eliminate “knowledge” gained in the source domain that is harmful in a target domain.
- Retain the “knowledge” that is helpful in the target domain.
- Identify a "cutting point" at which to begin the retraining process for best knowledge transfer.

**Further Analysis**

- Developing plans to use MIT’s Network Dissection tool to determine what low-level features were retained by the network when the cut is made before retraining.

**Previous Results**

- This analysis should also provide us with insight into our cross-dataset-generalization experiment results from a previous paper.