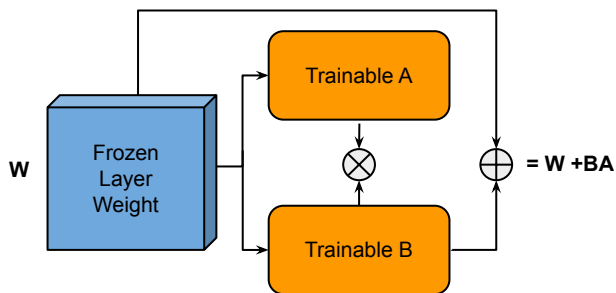


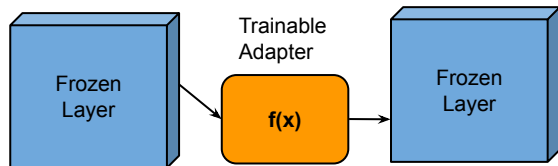
## 1. Parameter-Efficient Fine-Tuning (PEFT)

**Goal:** Adapt Behavior with Few Trainable Params

### LoRA (Low-Rank Adaption)

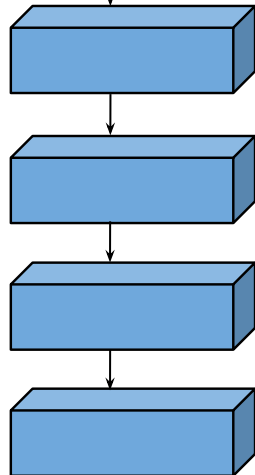
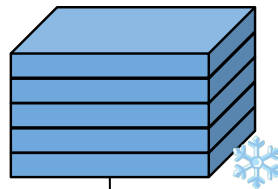


### Adapter-Based Methods



**Adapted Model Output**  
(Domain/Style Specific)

**Pre-trained Base Diffusion Model**  
(Frozen Backbone, e.g., UNet)

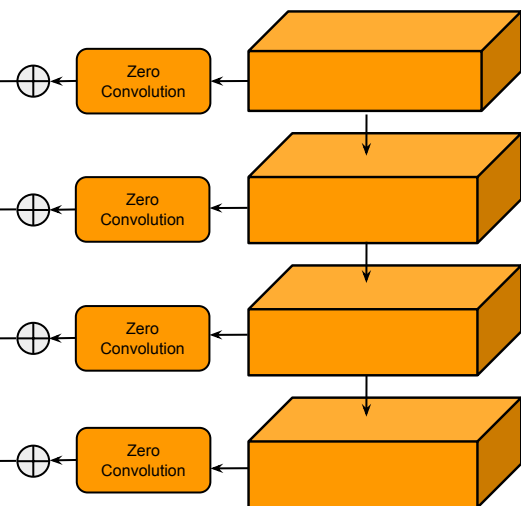


**Blue** = Frozen Parameters  
**Orange** = Trainable Parameters  
**Arrows** = Data Flow / Injection

## 2. ControlNet-Based Methods

**Goal:** Inject Spatial/Structural Control via Auxiliary Branch

**Trainable Control Branch**  
(Copy of Backbone Structure)



**Controllable Model Output**  
(Structure-Aligned)