# Evaluating Fine-Tuning Paradigms

## Topic

Supervised Fine-Tuning (SFT) vs. Reinforcement Learning (RL)

## Background

While Reinforcement Learning fine-tuning, such as RLHF or PPO, is currently the dominant paradigm for aligning advanced models, Supervised Fine-Tuning (SFT) remains a critical, and sometimes sufficient, baseline.

## Assignment Task

Critically evaluate the performance dynamics between RL-based fine-tuning and SFT. Is Reinforcement Learning inherently superior for model alignment and capability enhancement? Identify specific task distributions, data conditions, or operational scenarios where SFT can match or even exceed the efficacy of RL fine-tuning, and explain the theoretical reasoning behind this parity.

## Submission Expectation

Prepare a rigorous, self-contained written response that defines all key assumptions, uses precise technical terminology, and supports the argument with mathematical, architectural, or conceptual reasoning where appropriate.