Glossary: Generative AI Advance Fine-Tuning for LLMs

Welcome! This alphabetized glossary contains many terms used in this course. Understanding these terms is essential when working in the industry, participating in user groups, and participating in other certificate programs.

Term	Definition
Argmax/Argmin	The argument of the maximum/minimum of a function, i.e., the value of the input variable that yields the highest/lowest output value.
AutoModelForCausalLM	A class from the Hugging Face Transformers library used to load pre-trained causal language models like GPT-2 for text generation tasks.
AutoModelForCausalLMWithValueHead	An extension of the AutoModelForCausalLM class in Hugging Face for reinforcement learning, including a value head used for estimating the value function, crucial for models like PPO.
Beam search	A search algorithm that expands the most promising sequences of tokens at each step in sequence generation, used to improve the quality of outputs in language models by considering multiple possibilities simultaneously.
Beta (β) parameter	A hyperparameter in reinforcement learning that controls the balance between the current policy and the reference model, impacting the exploration and exploitation trade-off in policy optimization. In the context of DPO, it acts as the temperature parameter for the DPO loss.
Bradley-Terry model	A probabilistic model used for ranking and comparing different items or choices, often used to model pairwise preferences, where the probability of one item being preferred over another is based on their respective scores.
Closed-form solution	An explicit analytical expression for the solution of a problem that does not require iterative or numerical methods to solve.
Collator function	A function that organizes and batches input data into a format suitable for processing by machine learning models, especially in reinforcement learning scenarios.
Cost function	A function that represents the cost associated with a specific set of parameters in an optimization problem. It is used to guide models toward better performance by minimizing the cost during training.
Data collection	The process of gathering and preparing datasets, particularly preference datasets, for use in training models like those using direct preference optimization (DPO).
Dataset	A collection of data used for training, validating, and testing machine learning models. In this context, it refers specifically to the IMDB dataset used for sentiment analysis.
Dataset tokenization	The process of converting raw text data into token IDs that can be processed by machine learning models, particularly language models.