Model Parameters, Hyperparameters Finetuning & Optimization

Intern Presentation

Parameters vs Hyperparameters

Parameters	Hyperparameters
Model Learns during training.	Someone sets before training.

Why they Matter?

- Parameters define model knowledge
- Hyperparameters control the learning process

Model Fine-tuning

Process:

Pretrained Model	→	New Dataset	→	Finetuned Model

Benefits:

- less data, faster, better results

How it works:

- The model "remembers" general knowledge from the pre-training and only adjusts the weights in the layers relevant to the new task.

Hyperparameter Optimization

- Searches the best setting (value of hyperparameter) for training within a given range of values.

Techniques:

Grid Search	Random Search	Bayesian Optimization

• Grid Search: tries all combinations

• Random Search: samples randomly

• Bayesian Optimization: guided smart search

Key Takeaways

- Parameters = learned by model
- Hyperparameters = set by us
- Finetuning makes models practical
- Optimization improves results