The future with AI (8)

29 May 2024, 18:30 – 20:30
Cluj-Napoca, Strada Teodor Mihali 62

> Hyperparameter optimisation blueprint
Cristian Lungu @ Xetten AI

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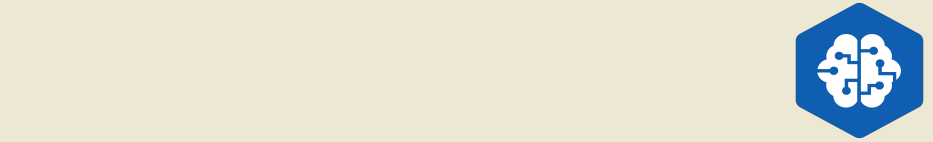
Agenda

- Introduction
- AI News
- (Break)
- Hyperparameter optimisation blueprint
- (Networking)



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Cristi Lungu

- PhDc UTCN
- Trainer @ curs-ml.com
- Founder / CTO @ Xetten AI

I’m an entrepreneur. I help companies optimise **costs** and increase **revenues** with AI / ML solutions **trained on proprietary data**.

Community news

- Discord server (free to join)
  - - https://discord.gg/8cG935Te

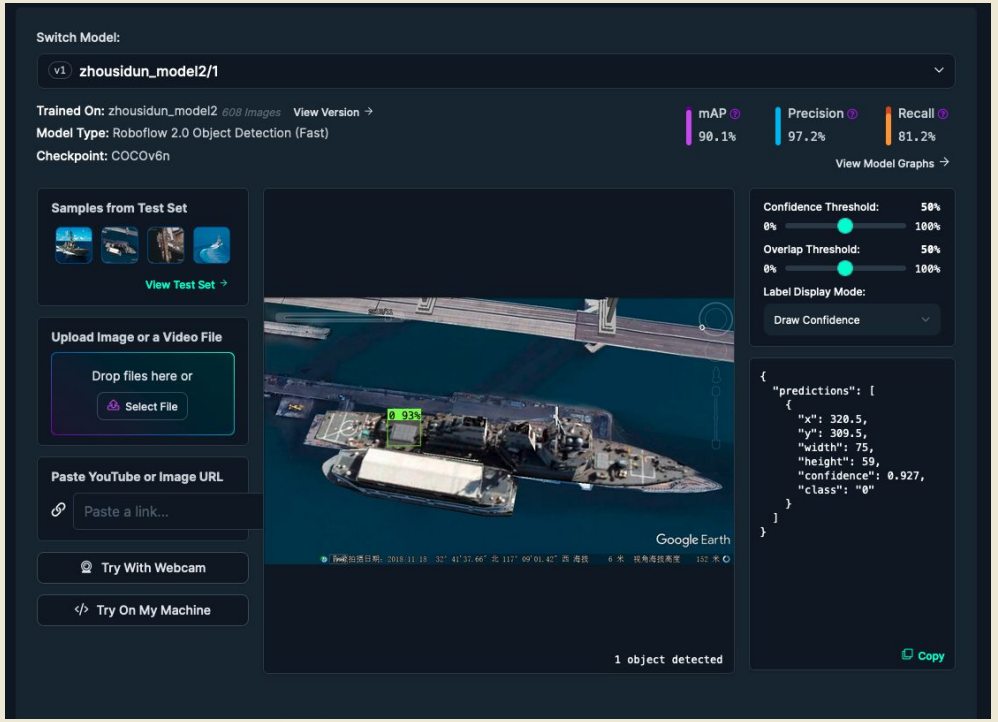
AI news

AI News

- China’s military dataset
- llm.c
- DeepSeek makes the best coding model in its class
- ChatGPT Native App
- GPT-4o

China’s military dataset

- UC Berkeley researchers have found a Chinese dataset named 'Zhousidun' (translation: 'Zeus's Shield').
- consists of "608 oblique and satellite images of
  - American Arleigh Burke-class destroyers
  - other allied destroyers and frigates"
  - bounding boxes drawn around "the ships' radar systems



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llm.c

- Andrej Karpathy (ex Stanford / TESLA / OpenAI)

  > Let's reproduce the **GPT-2** (124M) in llm.c (**~4,000 lines of C/CUDA**) in **90 minutes** for **$20**.

  > Single 8X A100 80GB GPU box, the **GPT-2 1558M** model would take **~1 week** and cost **~$2.5K**

- No PyTorch

DeepSeek

- Demo

(Break)

Hyperparameter optimisation blueprint

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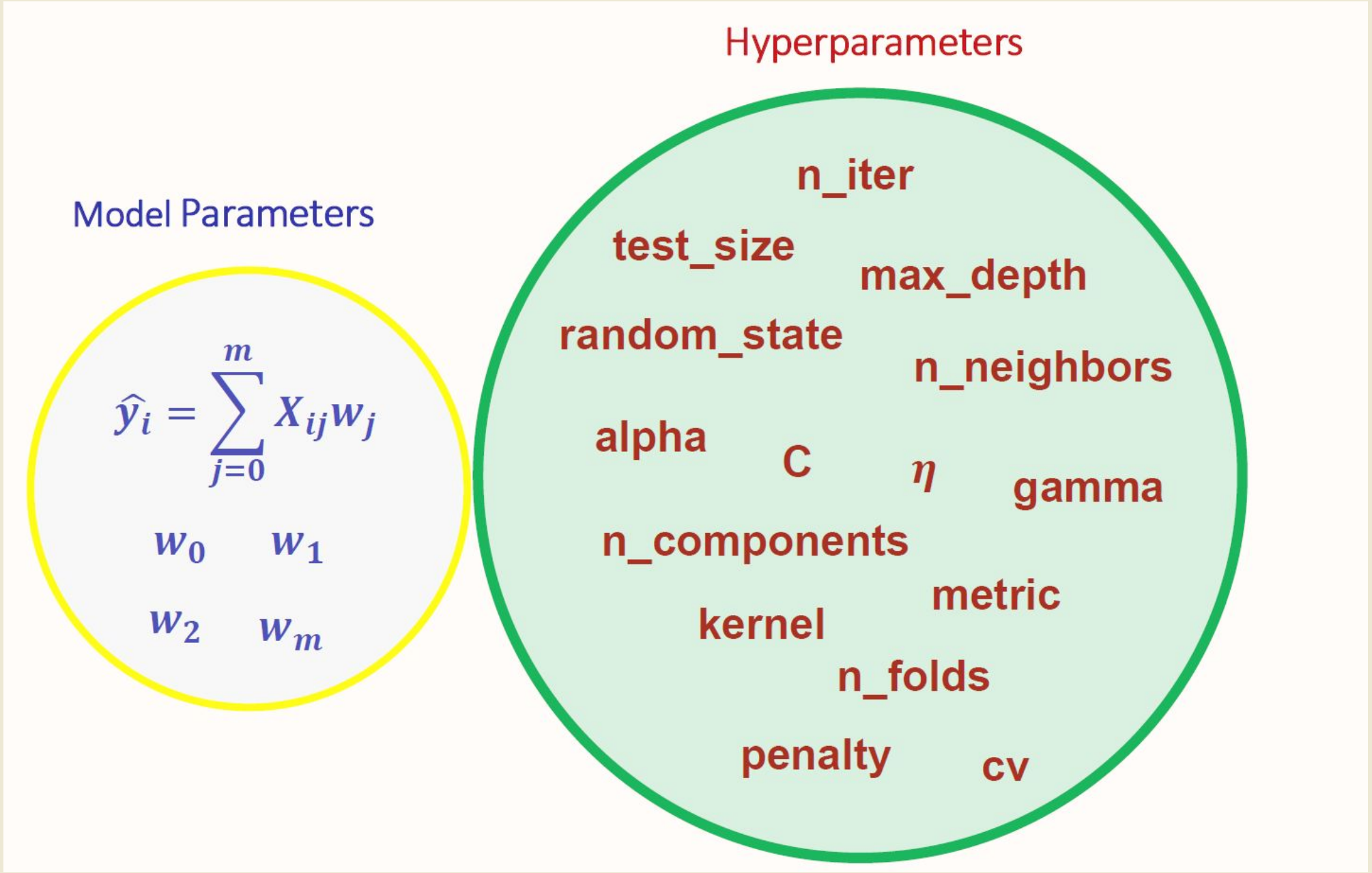
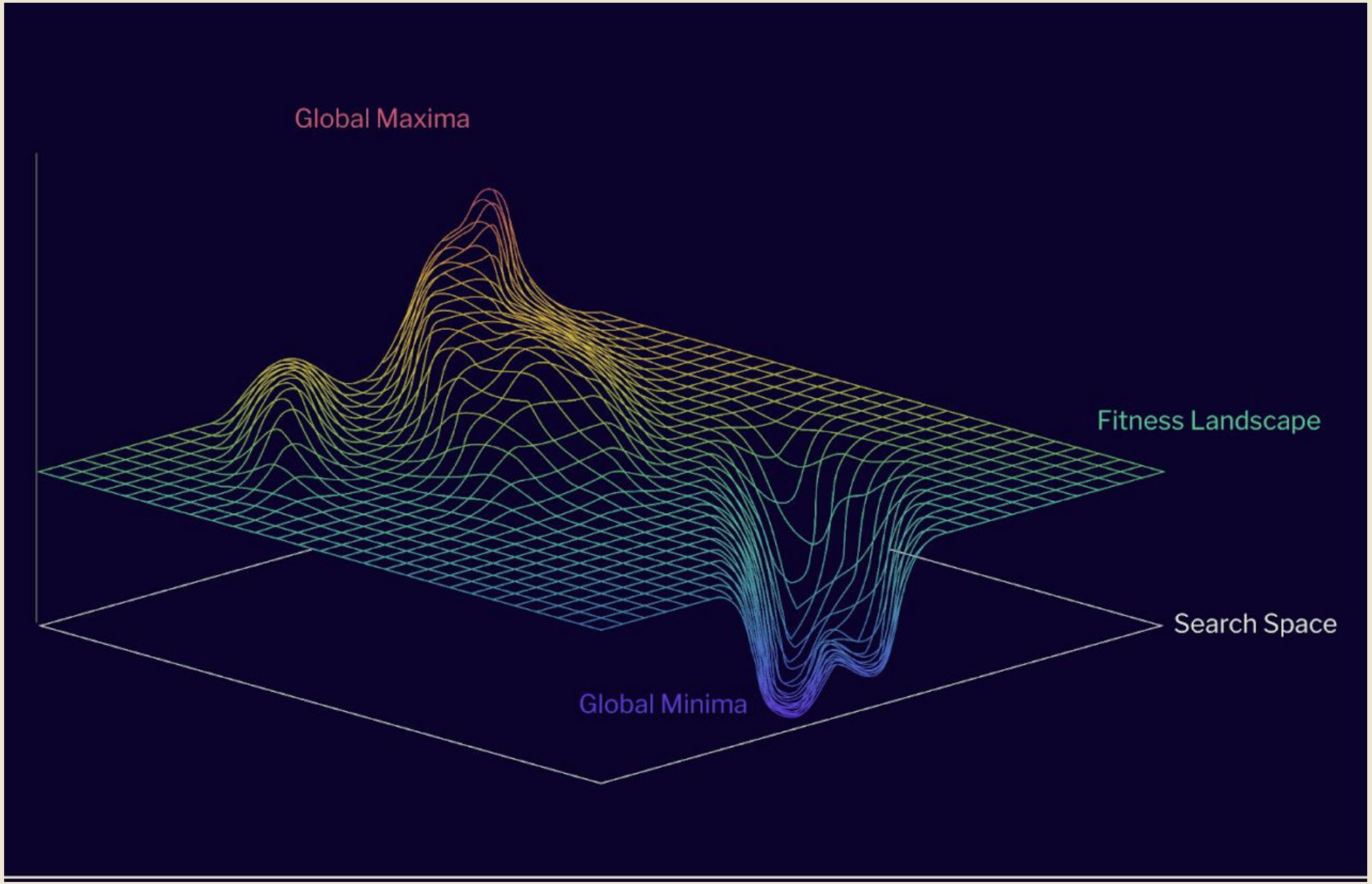
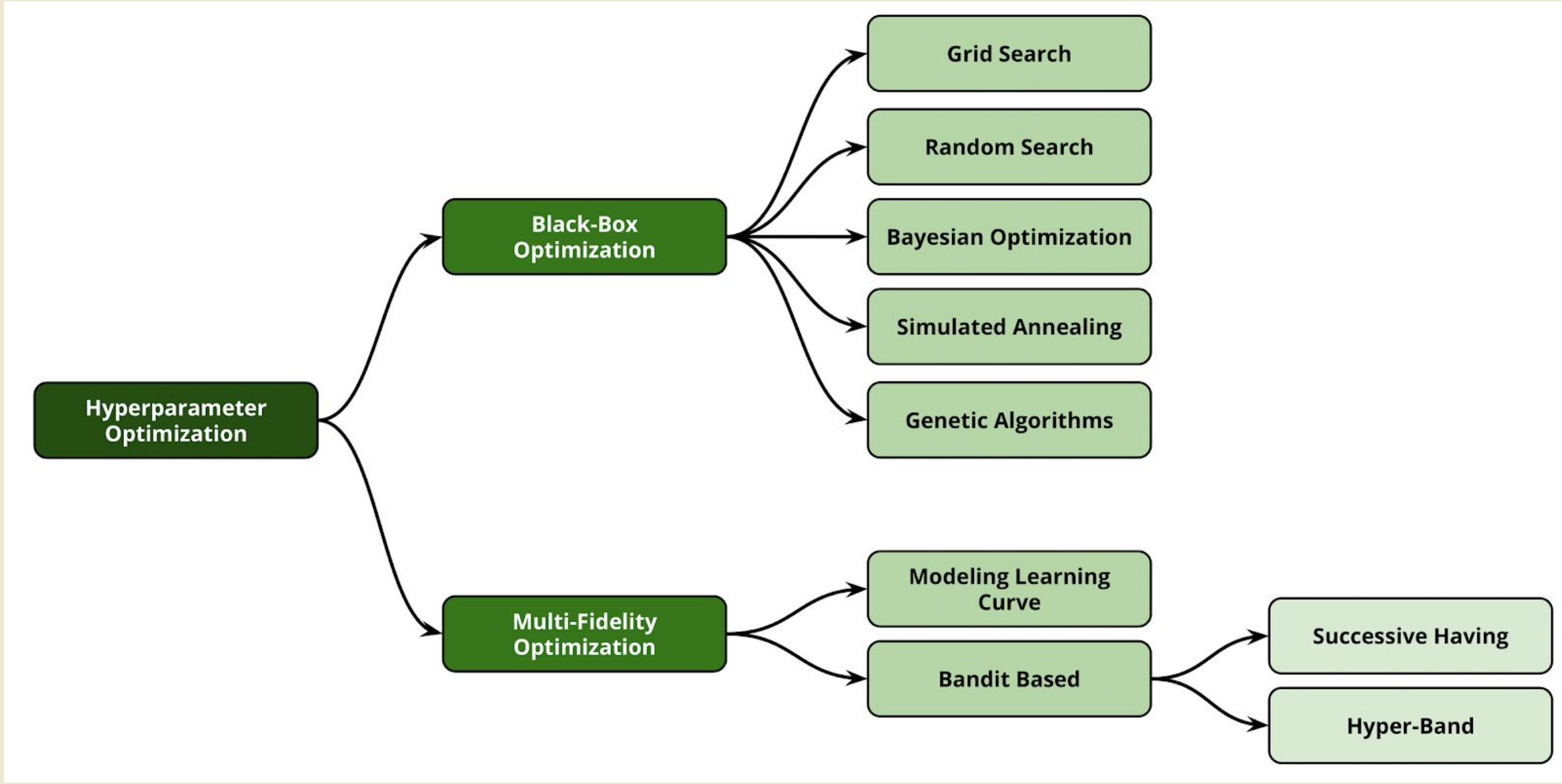
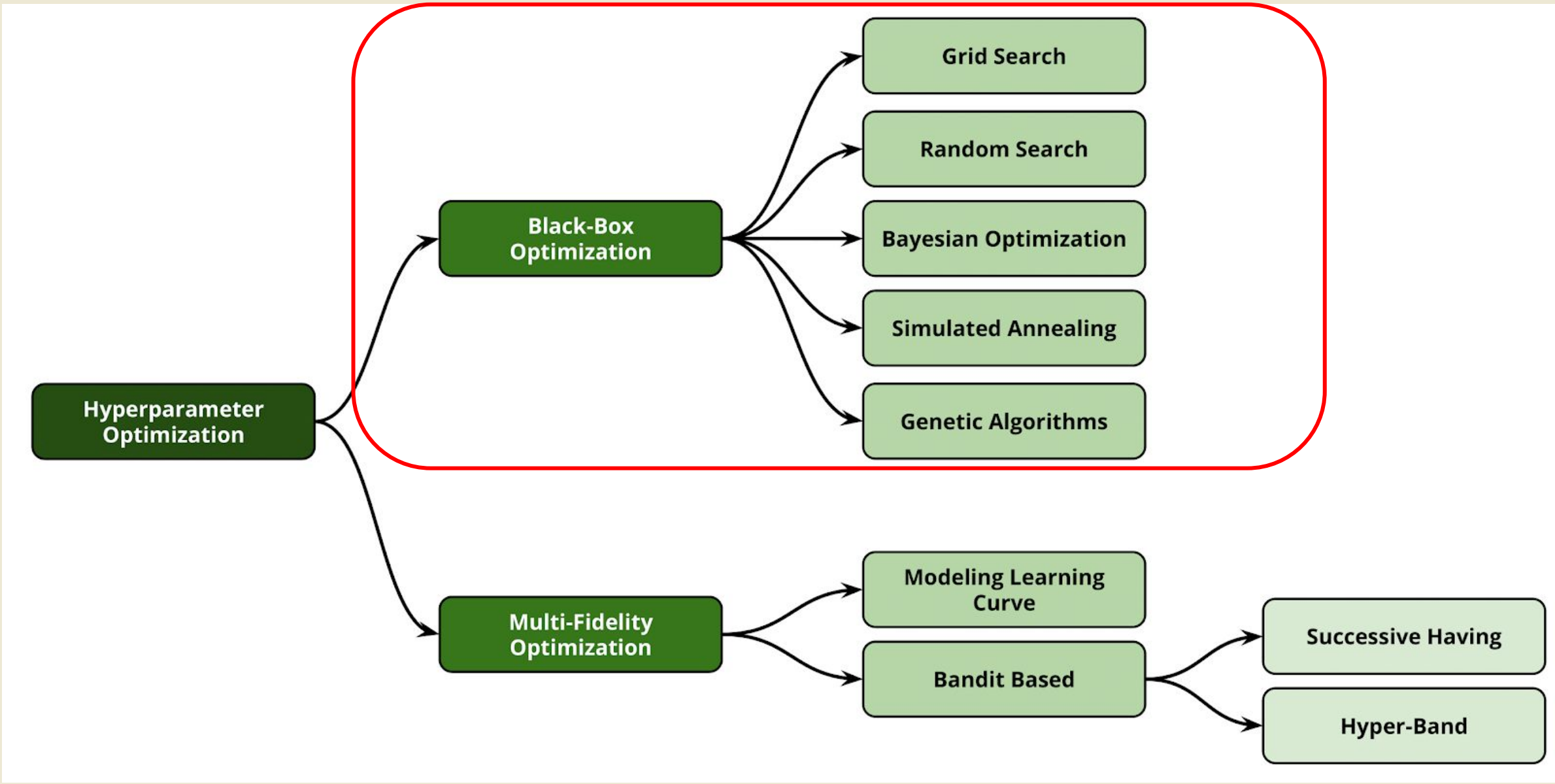

Hyperparameters
Model Parameters
$\hat{y}_i = \sum_{j=0}^{m} X_{ij} w_j$
w_0 w_1
w_2 w_m
n_iter
test_size
max_depth
random_state
n_neighbors
alpha
C
η
gamma
n_components
metric
kernel
n_folds
penalty
cv


Global Maxima
Fitness Landscape
Search Space
Global Minima


Hyperparameter Optimization
Black-Box Optimization
Grid Search
Random Search
Bayesian Optimization
Simulated Annealing
Genetic Algorithms
Multi-Fidelity Optimization
Modeling Learning Curve
Bandit Based
Successive Having
Hyper-Band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(Notebook)

Thank you!

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