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Efficient training of Neural Networks

Adrien Aguila--Multner

Enseirb-Matmeca & Inria

March 20, 2024



Artificial Intelligence

Optimisation

High Performance Computing

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Internship topic(s)

- Efficient training of neural networks
- Pipeline parallelism





• Activation checkpointing (Rockmate)

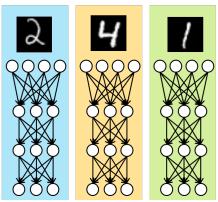
Introduction O Internship topic(

3d parallelism

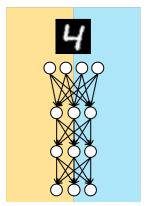
Tools 0 Conclusion o

Data Parallel vs Model Parallel

Data Parallel



Model Parallel



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Internship topic(s)

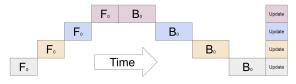
3d parallelism

Tools 0

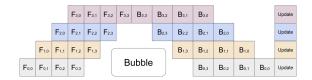
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Conclusion 0

Pipeline Parallel



Without pipelining



With pipelining

Introduction O Internship topic(s)

3d parallelism

Tools

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Conclusion

Torch distributed & Torchrun

Demo

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Thank you !