NEW YORK UNIVERSITY

Final Project Presentation

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Agenda

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Executive Summary

Asynchronized Stochastic Gradient Descent

Advantages

High accuracy

Disadvantages

Waste time and lead to slow converge

Synchronous Distributed Stochastic Gradient Descent

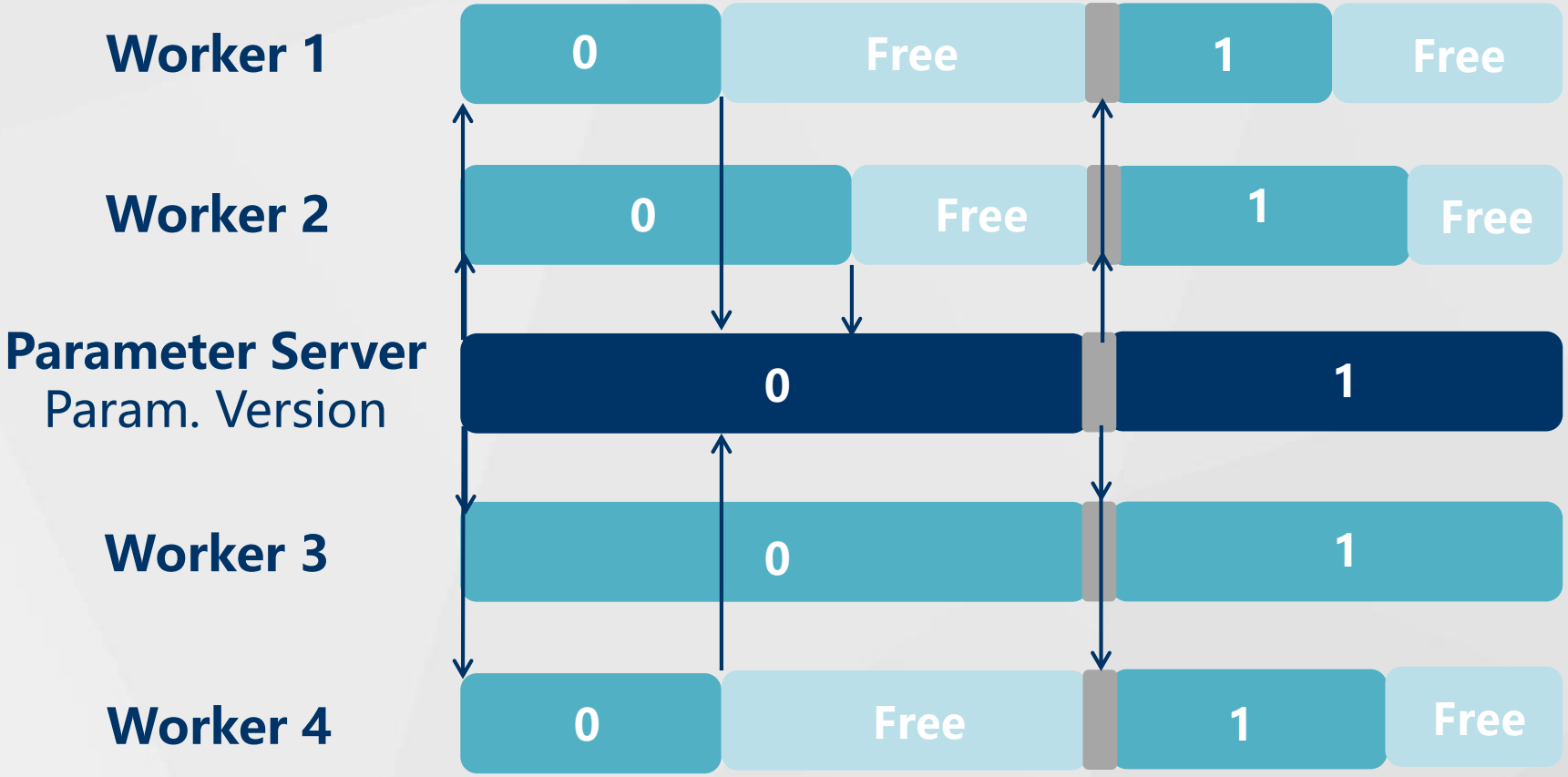
Advantages

Time saving

Disadvantages

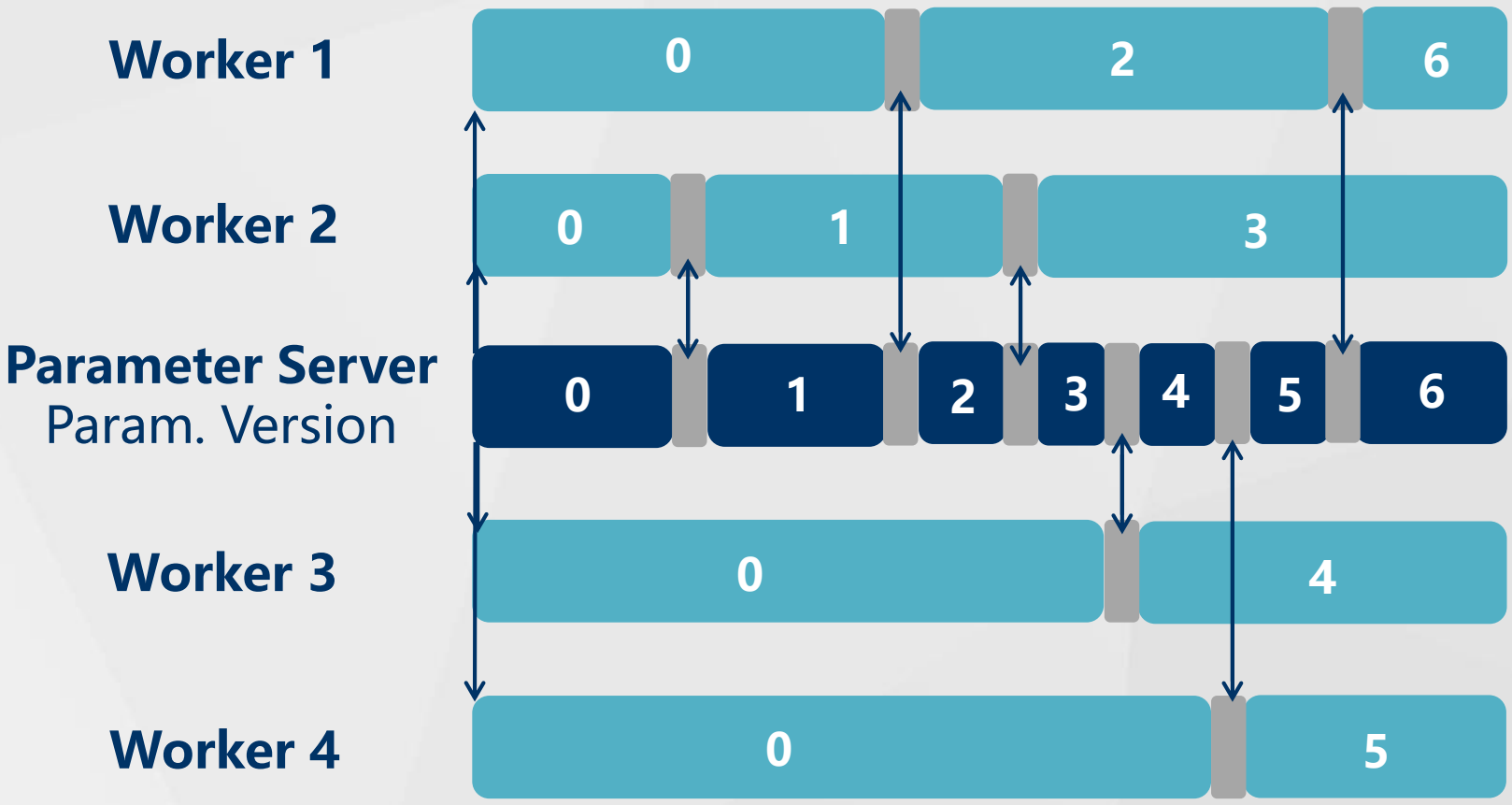
Lower accuracy

Approach A – Synchronize SGD



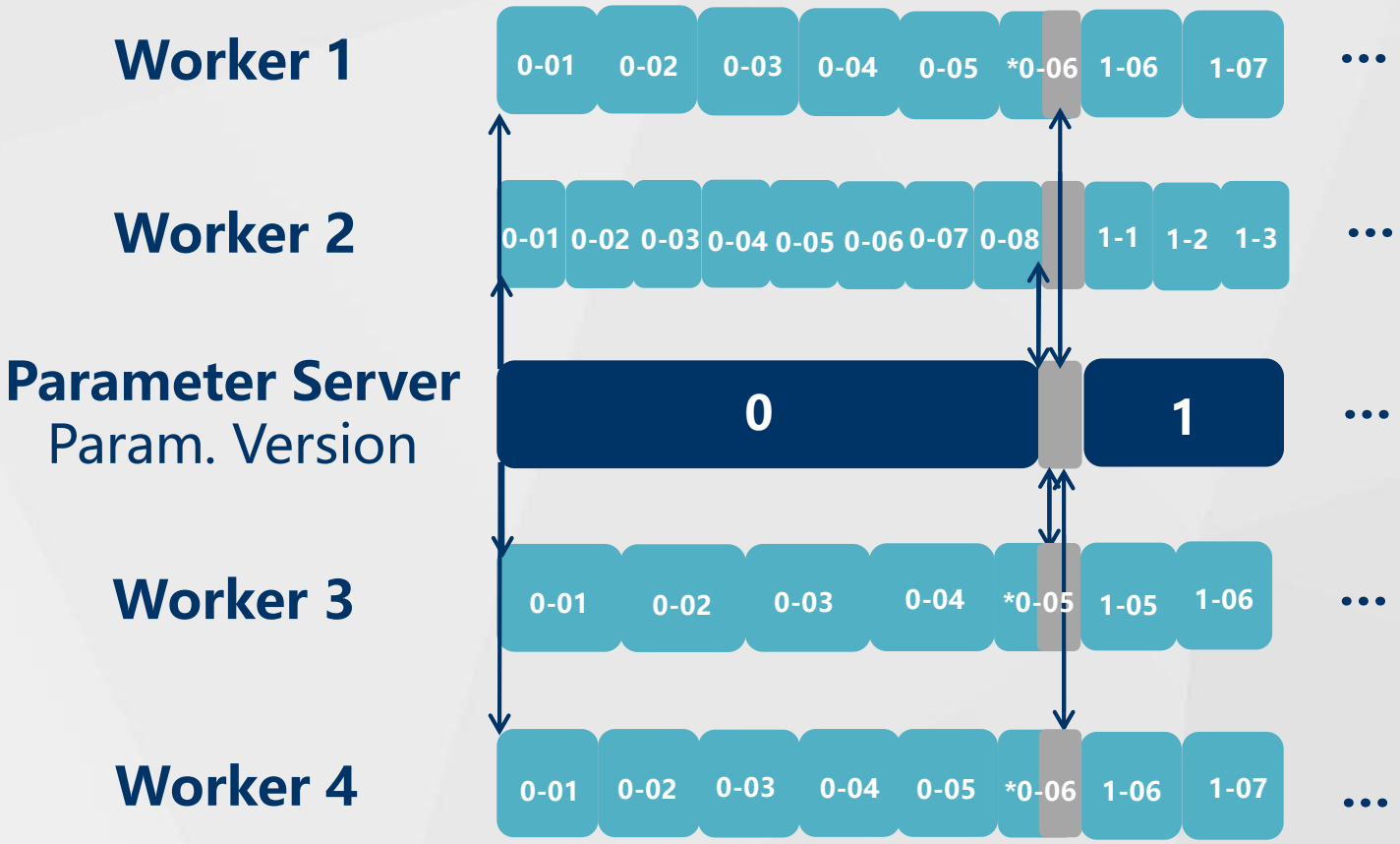
- Batch size =256
- Cons: Waste time
- : Communication time

Approach B – Asynchronized SGD



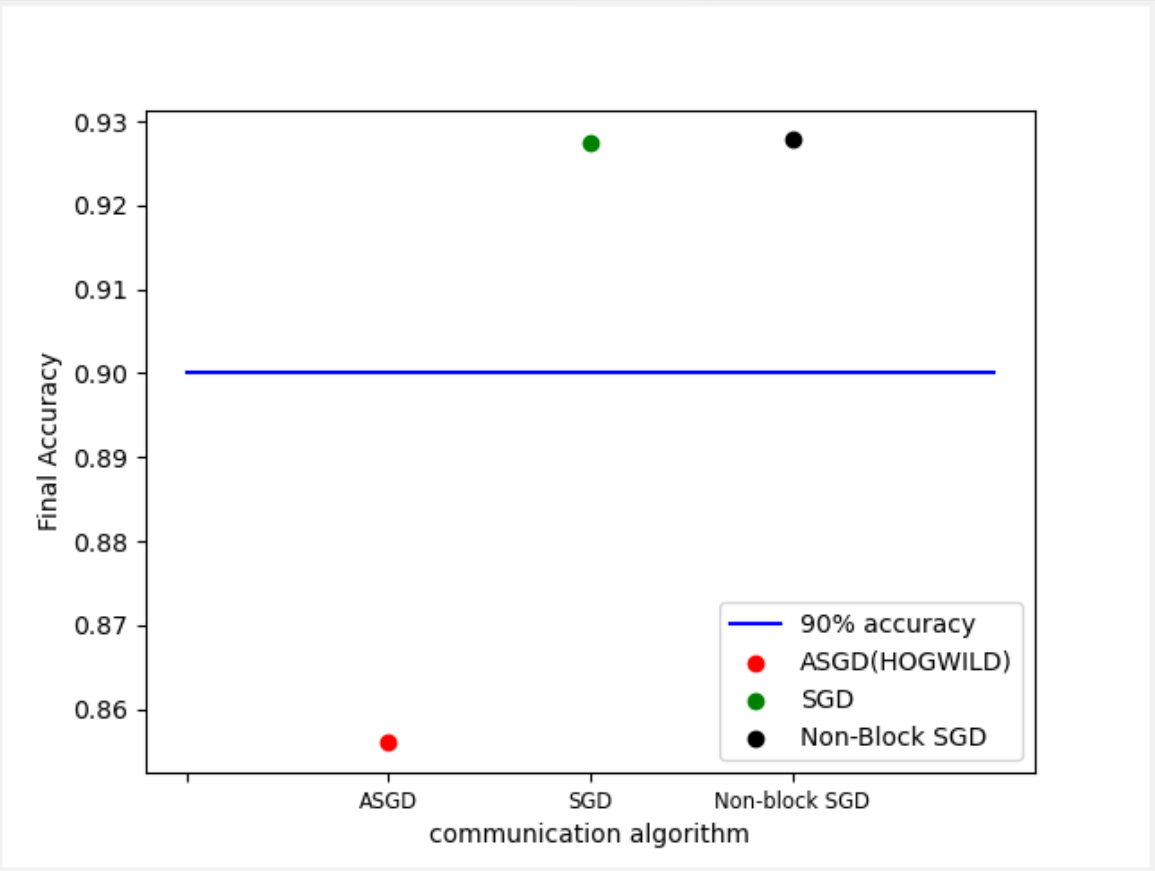
- Batch size =256
- Cons: Lower Accuracy
- : Communication time

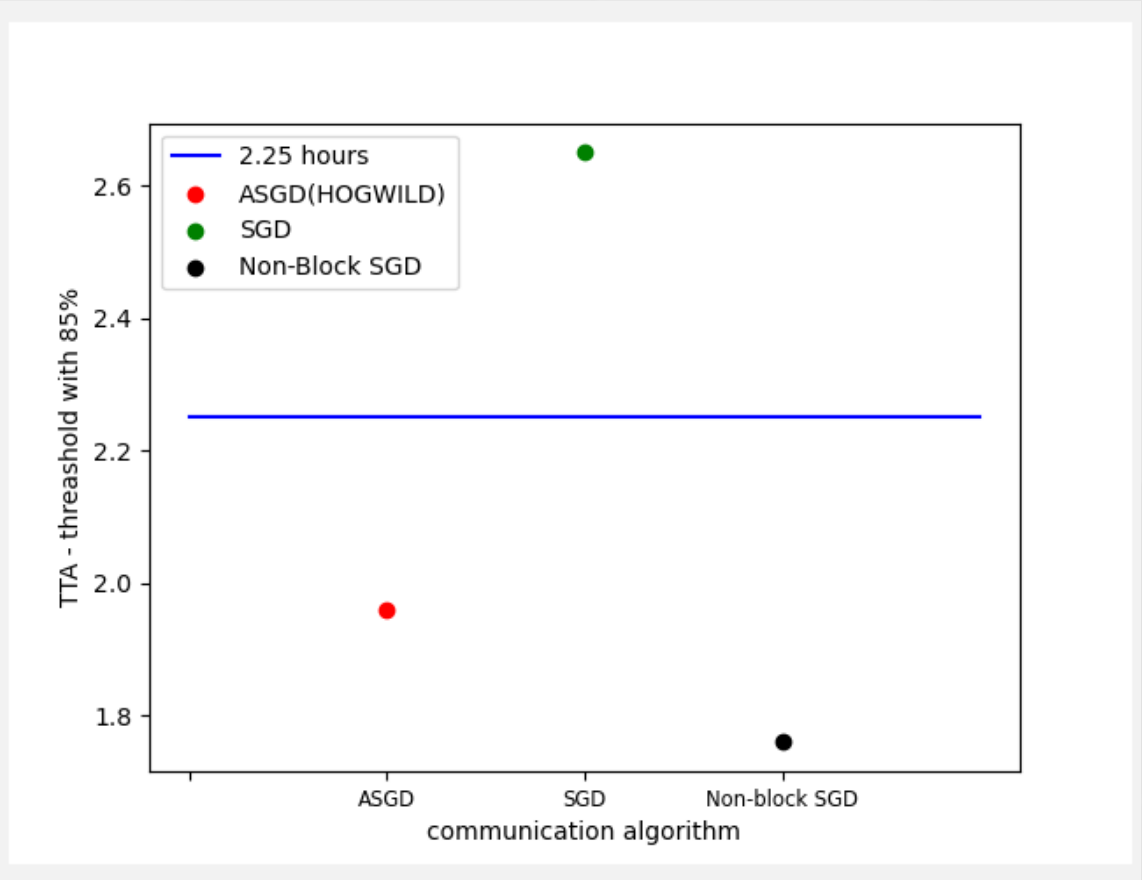
Approach C – Non-Block SGD



- Batch size = 256
- * : Unfinished part
- : Communication time

Main Results





Observations & Conclusion

- Non-blocking SGD has simiar accuracy with SGD and much higher than ASGD
- Non-blocking SGD has similar TTA with ASGD and much quicker than SGD
- Non-blocking SGD has even better TTA than ASGD when threashold is high enough(85%)

GitHub Link

GitHub Link: https://github.com/HectorHHZ/HPML

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THANK YOU!