

Efficient Split-Mix Federated Learning for On-Demand and In-Situ Customization

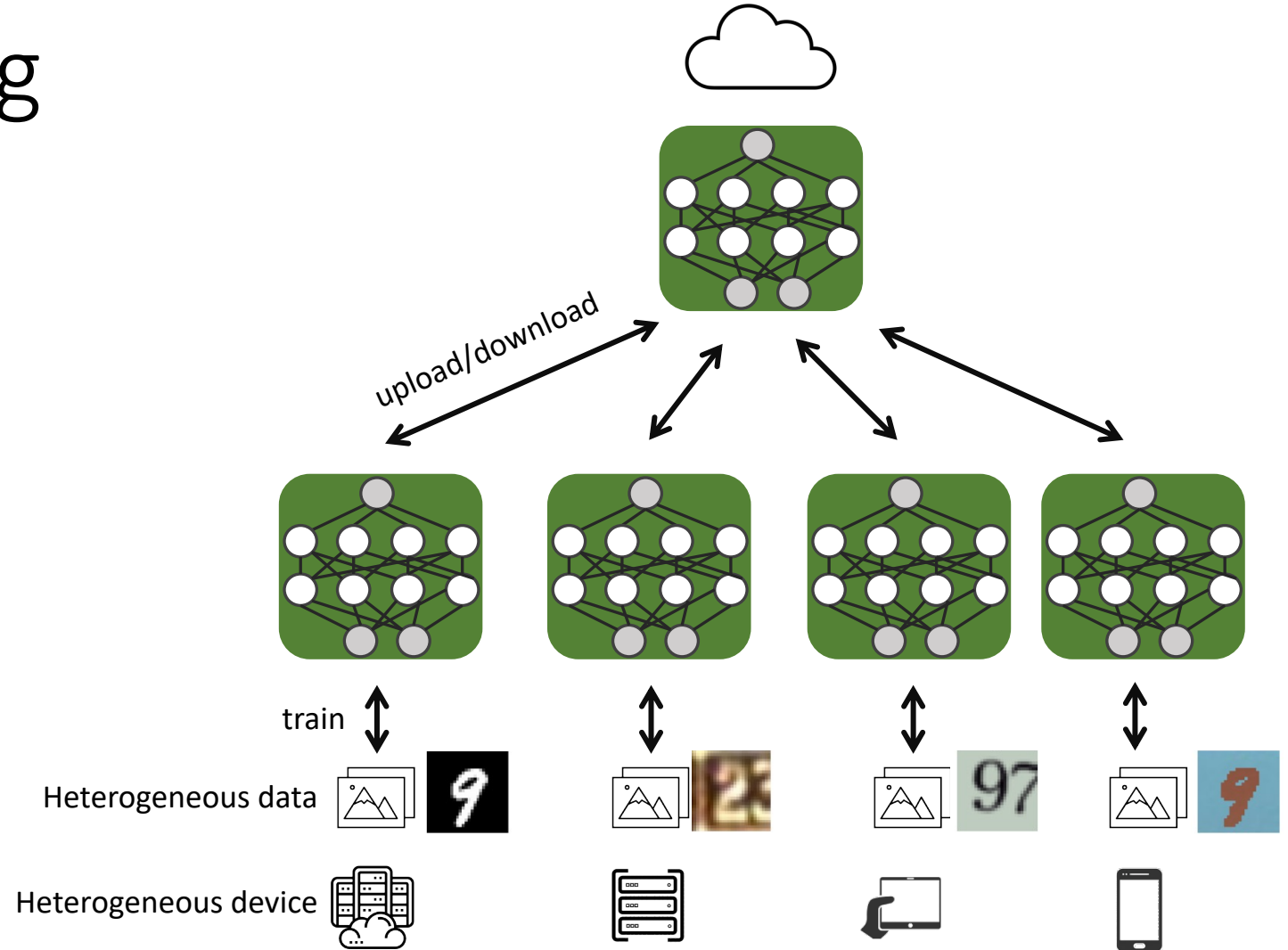
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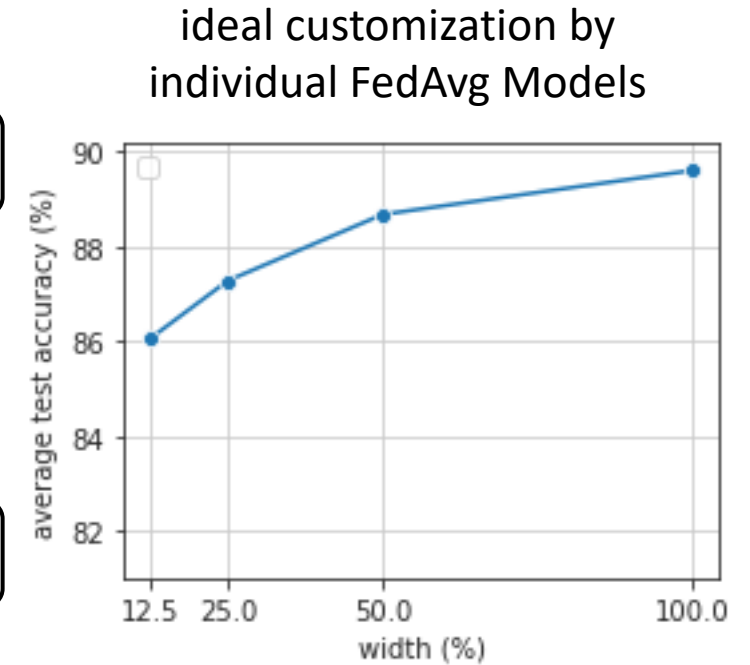
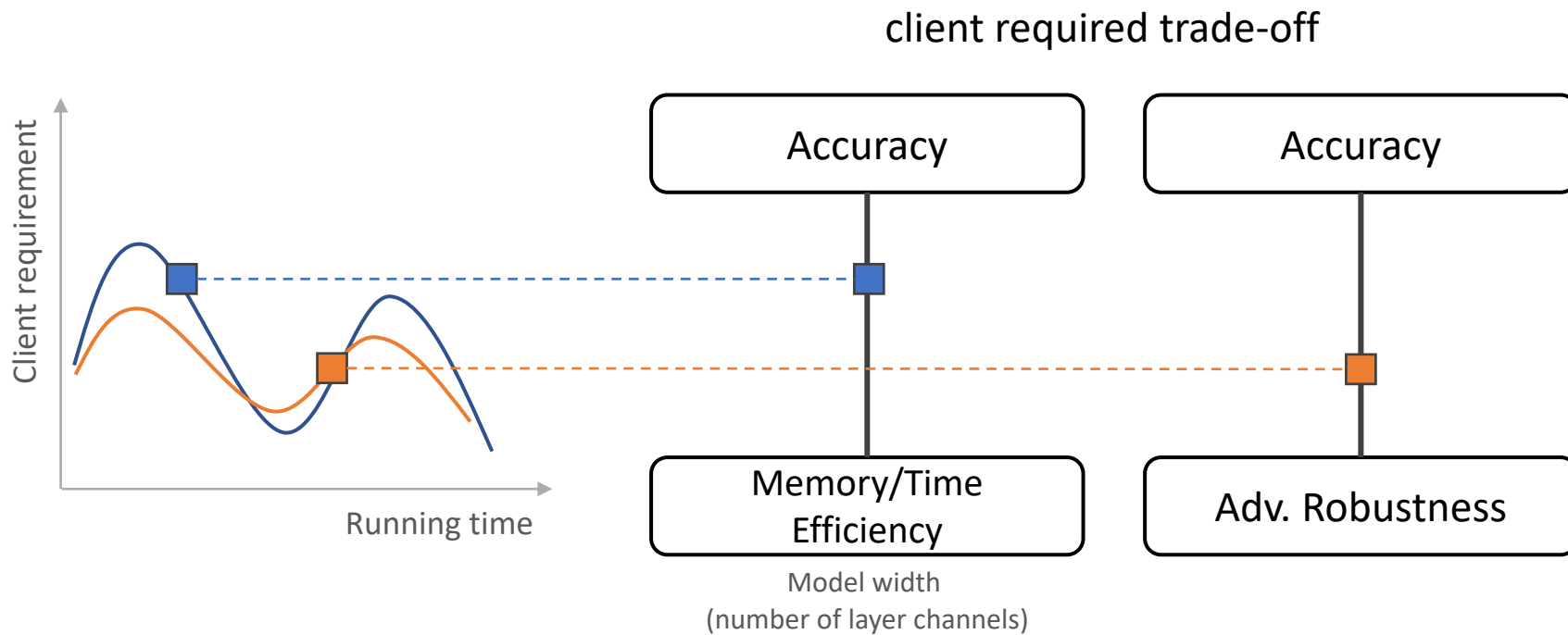


Federated Learning

- *Training* is distributed to enormous clients and aggregated by parameter averaging.
- *Advantage*: Privacy protection, communication efficiency, flexible training with heterogeneous clients



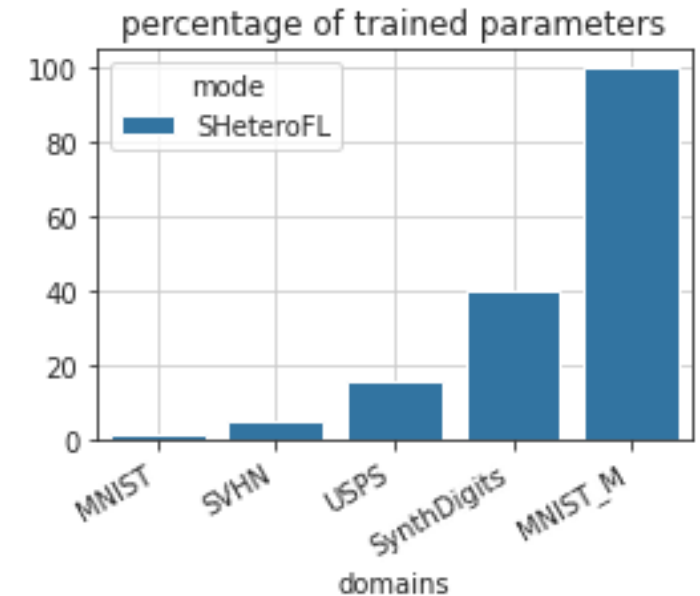
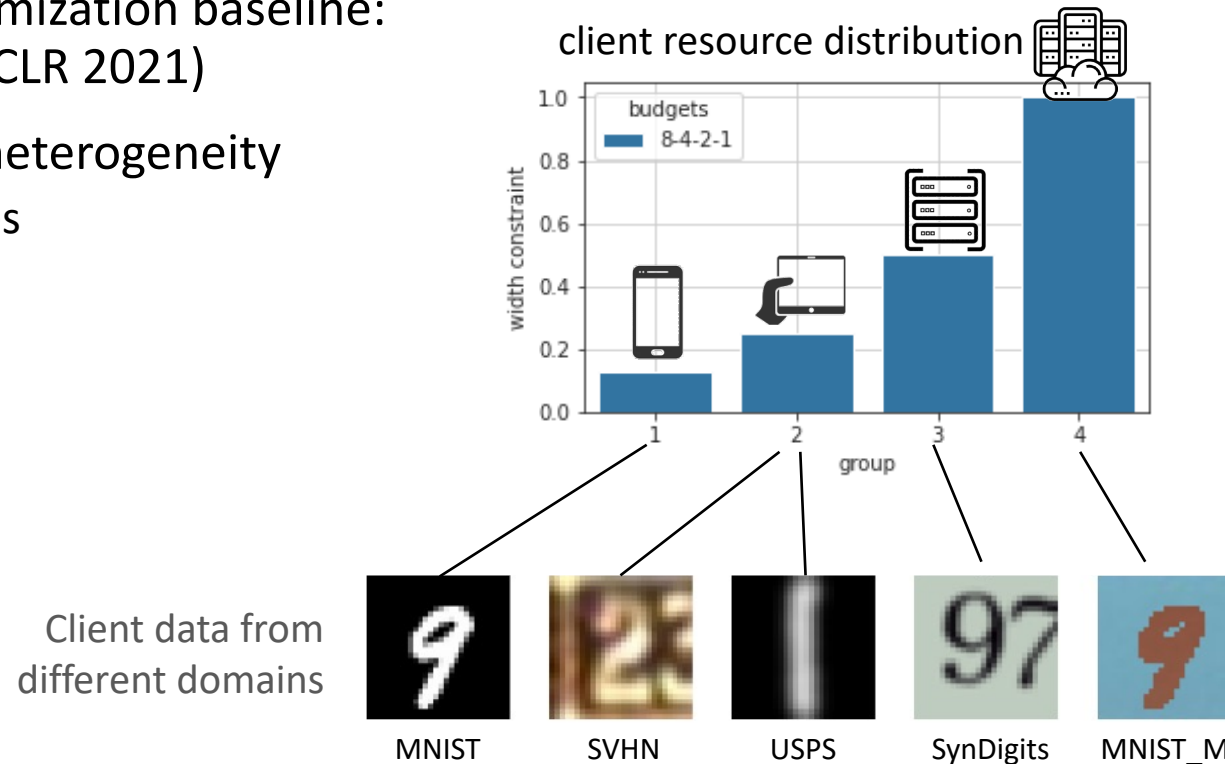
Run-time Dynamics & Model Customization



- More training time
- Inefficient customization

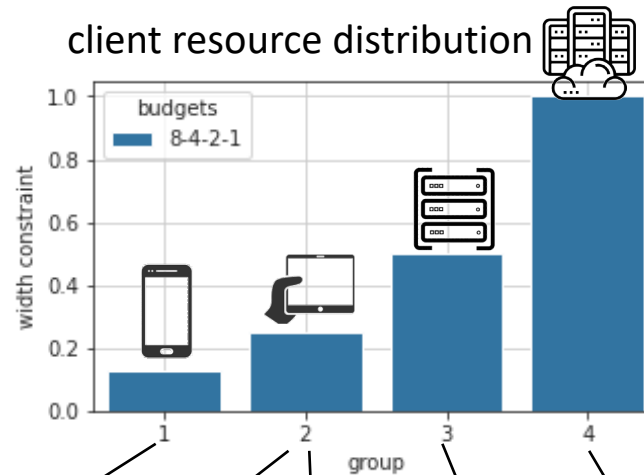
Challenges for In-situ Customization from Heterogeneous Federated Learning

- In-situ customization baseline: SHeteroFL (ICLR 2021)
- Co-existing heterogeneity
 - Resources
 - Data

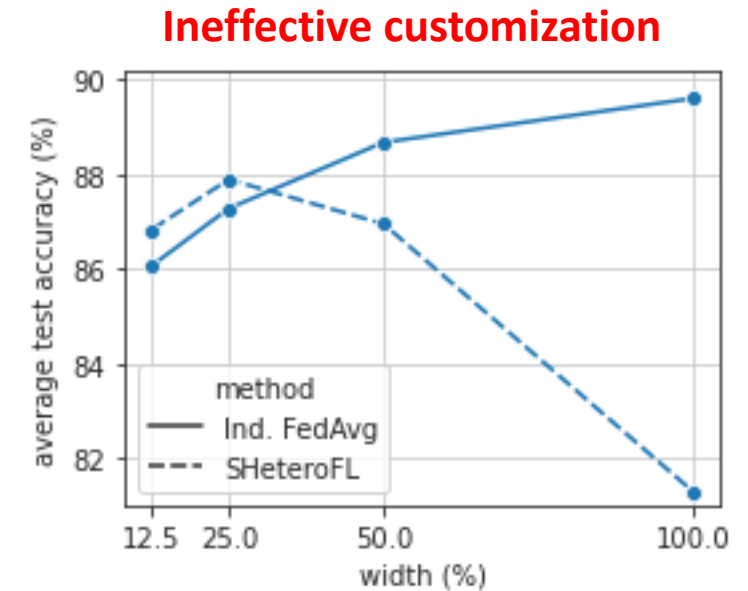


Challenges for In-situ Customization from Heterogeneous Federated Learning

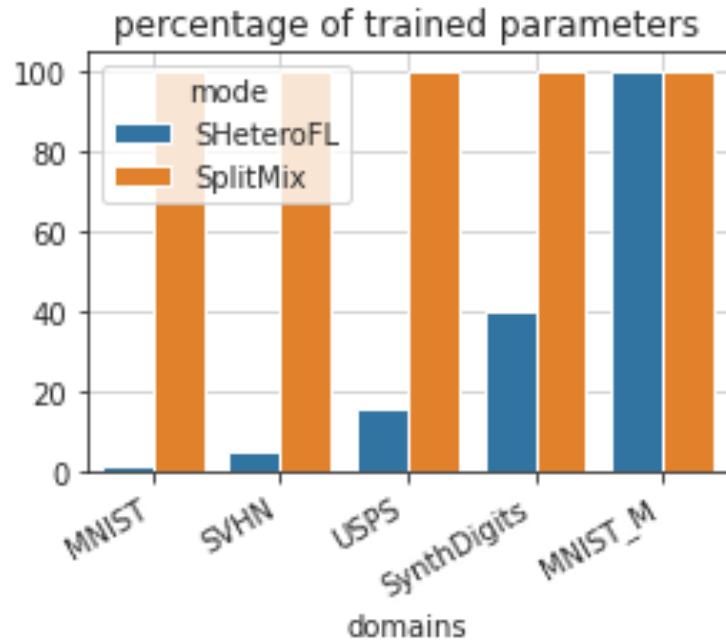
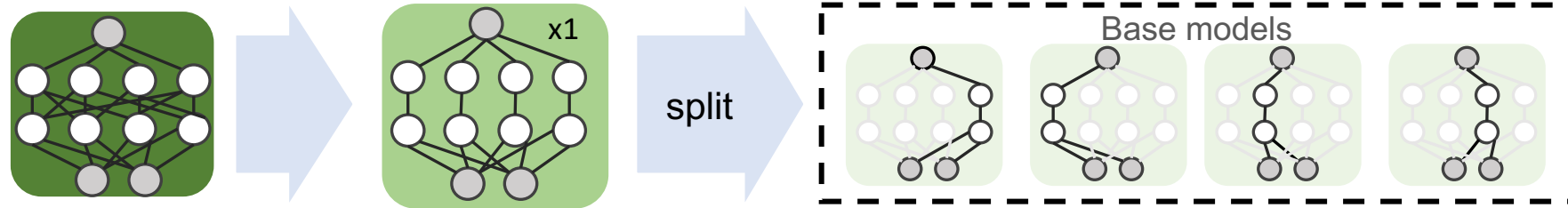
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Client data from different domains

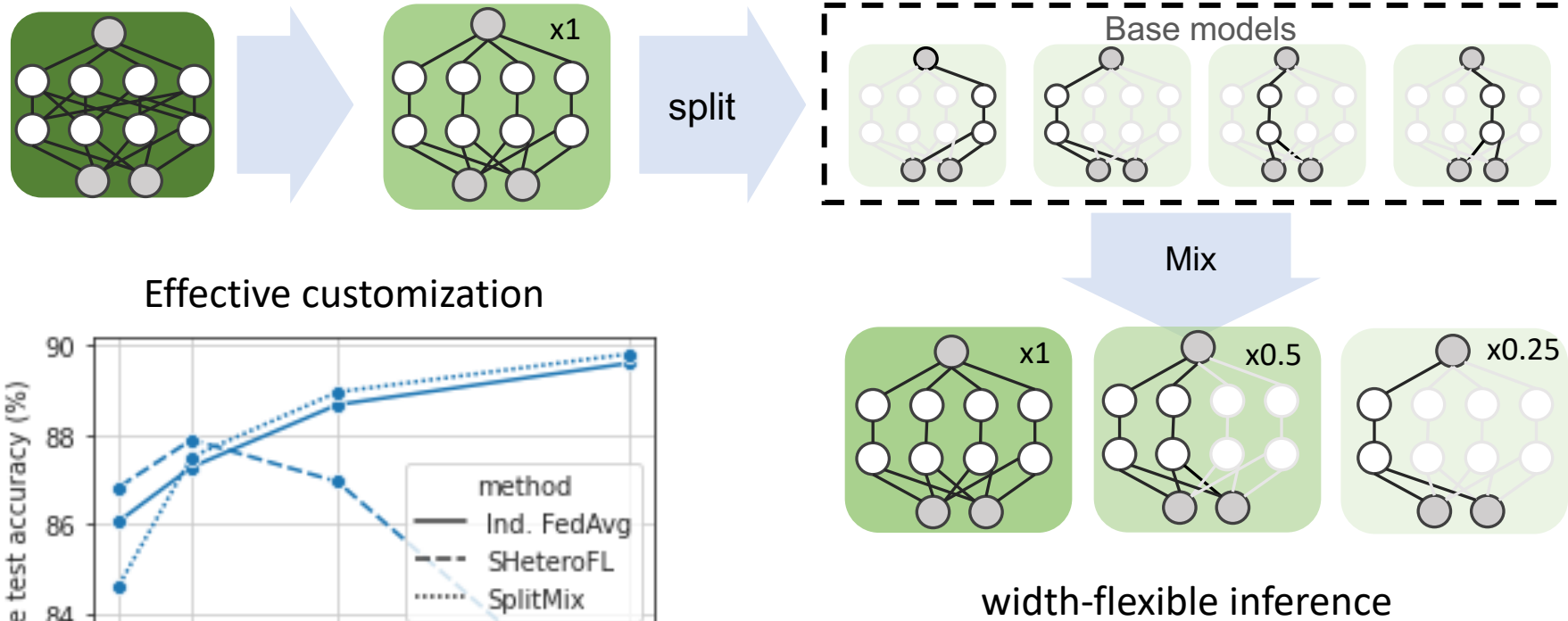


Split-Mix

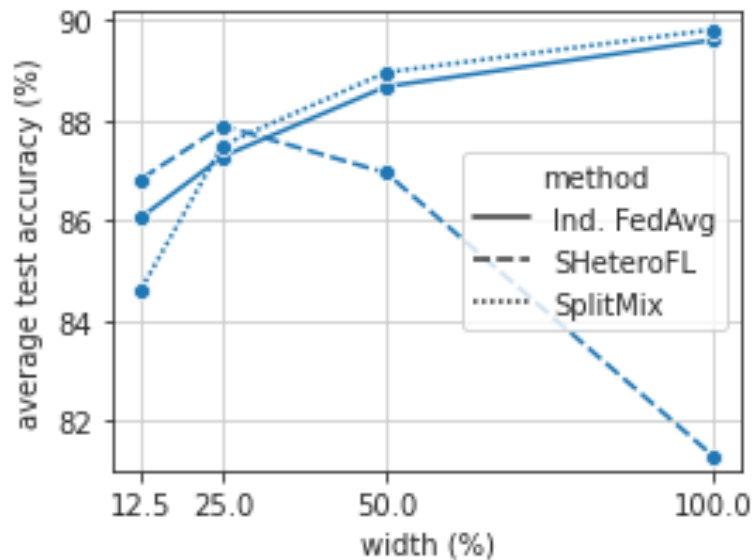


Flexible and affordable training

Split-Mix



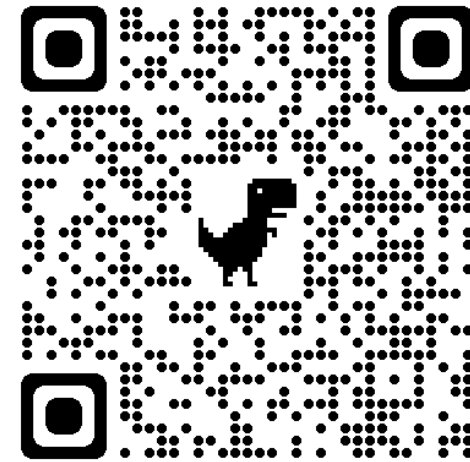
Effective customization



Thank you!

More in our paper:

- Adversarial robustness customization.
- Joint customization of robustness and model sizes.



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Code: <https://github.com/illidanlab/SplitMix>