CLAIMS

1. A computer-implemented method for data sharing between a data miner and data providers, each of the data providers comprising one or more processors to execute the computer-implemented method, the computer-implemented method comprising:

downloading, by a first data provider u, a first set of public parameters from the data miner, wherein the first set of public parameters comprises parameters maintained by the data miner that are obtained after the data providers jointly participate in an updating process and the first set of public parameters associated with a first feature set of training sample data, wherein the training sample data comprises a plurality of features, and the first feature set is a first subset of the plurality of features allocated by the data miner to the first data provider to be downloaded in parallel with a second subset of the plurality of features allocated by the data miner to a second data provider to satisfy a convergence condition that accelerates training, wherein the first subset of the plurality of features intersects the second subset of the plurality of features;

replacing, by the first data provider, a set of private parameters of the first data provider W^u with the first set of public parameters to generate a set of replaced values of the set of private parameters, wherein the set of private parameters comprises data provider parameters stored solely by the first data provider without being shared with the data miner and wherein the set of private parameters is associated with the first feature set of training sample data;

updating, by the first data provider, the set of private parameters W^u to provide a set of update results, the set of private parameters being updated based on a model parameter update algorithm associated with the first data provider;

sorting, by the first data provider, as a first sorted set of update results, the set of update results comprising a predetermined number of parameters of the set of update results with changes that are greater than a predetermined value to generate a sorted set of update results;

generating, by the first data provider, a first truncated set of update results by truncating the first sorted set of update results based on a predetermined value range; and

uploading, by the first data provider, the first truncated set of update results to the data miner to be processed with a second truncated set of update results uploaded by the second data provider to verify the convergence condition.

2. The computer-implemented method according to claim 1, wherein the data miner and at least one of the data providers separately maintain model parameters for a feature set of training sample data.

3. The computer-implemented method according to any one of claims 1 to 2, wherein the data miner maintains a public parameter set W^{global}, and each data provider u of the data providers maintains the first truncated set of update results Wu.

4. The computer-implemented method according to any one of claims 1 to 3, wherein downloading the first set of public parameters comprises: downloading, by the first data provider u, a public parameter subset $W^{global \rightarrow u}$ from the data miner, wherein a number $N_{download}{}^{\mu}$ of parameters in $W^{global \rightarrow u}$ is less than a number N of parameters in W^{global}.

5. The computer-implemented method according to claim 1, wherein downloading the first set of public parameters from the data miner comprises: downloading, by different data providers from the data miner, public parameter subsets for different features of a feature set of training sample data.

6. The computer-implemented method according to claim 1, wherein downloading the first set of public parameters from the data miner comprises: downloading a plurality of subsets, each of the plurality of subsets corresponding to a different feature of the first feature set of training sample data.

7. The computer-implemented method according to any one of claims 1 to 6, wherein uploading the truncated set of update results to the data miner comprises:

uploading an updated parameter value to the data miner; or

uploading, to the data miner, a parameter change value generated during updating.

8. The computer-implemented method according to any one of claims 1 to 6, wherein uploading the first truncated set of update results to the data miner comprises:

determining, by the first data provider a private parameter subset $W^{u \rightarrow global}$, and

uploading, to the data miner, a parameter update result that corresponds to the private parameter subset $W^{u\rightarrow global}$, wherein a number $N_{upload}{}^{u}$ of parameters in the private parameter subset $W^{u\rightarrow global}$ is less than a number N of parameters in the set of private parameters W^{u}.

9. The computer-implemented method according to claim 8, wherein determining the private parameter subset $W^{u\rightarrow global}$ comprises:

sorting change values that are of parameters in the set of private parameters W^{u} and that are generated during updating,

and selecting one or more parameters that correspond to one or more larger change values, to form the private parameter subset $W^{u\rightarrow global}$.

10. The computer-implemented method according to claim 1, wherein the first truncated set of update results comprises noise addition to the first truncated set of update results.

11. An apparatus for training a model, the apparatus comprising a plurality of modules configured to perform the computer-implemented method according to any one of claims 1 to 10.

12. A computer device, comprising a memory, a processor, and a computer program that is stored in the memory and that can run on the processor, wherein when executing the computer program, the processor performs the computer-implemented method according to any one of claims 1 to 10.