CLAIMS

1. A semiconductor inspection method comprising:

a step of acquiring a second pattern image showing a pattern of a semiconductor device and having a resolution different from a resolution of a first pattern image showing a pattern of the semiconductor device;

a step of reconstructing the second pattern image into a reconstructed image having a different resolution from the resolution of the second pattern image, by a reconstruction process using a learning model acquired by machine learning using training data of a pair of pattern images including pre-acquired first and second pattern images of the semiconductor device having resolutions different from each other;

a step of acquiring the first pattern image;

and

a step of performing alignment based on a region calculated to have a higher degree of certainty than another region by the reconstruction process using the learning model in the reconstructed image and the first pattern image.

2. The semiconductor inspection method according to claim 1, wherein the machine learning is deep learning.

3. The semiconductor inspection method according to claim 2, wherein the degree of certainty is based on an output value of a node of an output layer in the learning model.

4. The semiconductor inspection method according to any one of claims 1 to 3, wherein the reconstructed image is weighted according to the degree of certainty, and then the reconstructed image and the first

pattern image are aligned.

5. The semiconductor inspection method according to any one of claims 1 to 4, wherein the first pattern image or the second pattern image is acquired by measuring the semiconductor device.

6. The semiconductor inspection method according to any one of claims 1 to 5, wherein the first pattern image or the second pattern image is acquired based on CAD data related to the semiconductor device.

7. A semiconductor inspection device comprising:

an acquisition unit configured to acquire a first pattern image showing a pattern of a semiconductor device and a second pattern image showing a pattern of the semiconductor device and having a resolution different from a resolution of the first pattern image;

an image conversion unit configured to reconstruct the second pattern image into a reconstructed image having a different resolution from the resolution of the second pattern image, by a reconstruction process using a learning model acquired by machine learning using training data of a pair of pattern images including pre-acquired first and second pattern images of the semiconductor device having resolutions different from each other; and

an alignment unit configured to perform alignment based on a region calculated to have a higher degree of certainty than another region by the reconstruction process using the learning model in the reconstructed image and the first pattern image.

8. The semiconductor inspection device according to claim 7, wherein the machine learning is deep learning.

9. The semiconductor inspection device according to claim 8, wherein the degree of certainty is based on an output value of a node of an output layer in the learning model.

10. The semiconductor inspection device according to any one of claims 7 to 9, wherein the alignment unit weights the reconstructed image according to the degree of certainty, and then aligns the reconstructed image and the first pattern image.

11. The semiconductor inspection device according to any one of claims 7 to 10, wherein the acquisition unit acquires the first pattern image or the second pattern image by measuring the semiconductor device.

12. The semiconductor inspection device according to any one of claims 7 to 11, wherein the acquisition unit acquires the first pattern image or the second pattern image based on CAD data related to the semiconductor device.