## CLAIMS

1. A method for estimating a failure probability of one or more assets, comprising:
Receiving, for each of a plurality of assets, operating condition data of the asset;
Separating the assets into a plurality of groups taking into account the operating condition data of the assets;
Determining, for each group, an expected asset health index of the assets belonging to the group;
Determining an operating condition monitoring data feature of an asset to be evaluated;
Determining, for each group, a conditional probability that the asset to be evaluated belongs to the group taking into account the operating condition monitoring data feature of the asset to be evaluated and condition monitoring data features of the assets belonging to the group*;* and
Estimating a probability of failure of the asset to be evaluated by the summation of the conditional probability of the assets belonging to each group times the expected asset health index of each groups,
wherein determining the conditional probability that the asset to be evaluated belongs to the group comprises:
Determining, for each asset, an anomaly measure of the condition monitoring data feature of the asset;
Determining, for each group, a distribution of the anomaly measure of the condition monitoring data feature of the assets belonging to the group;
Determining, for the asset to be evaluated, the anomaly measure of the condition monitoring data feature of the asset to be evaluated;
Determining, for each group, the conditional probability that the asset to be evaluated belongs to the group by determining a probability that the anomaly measure of the condition monitoring data feature of the asset to be evaluated has according to the distribution of the anomaly measure of the condition monitoring data feature of the assets belonging to the group,
wherein separating the assets into the plurality of groups comprises separating the assets into the plurality of groups, such that, for every two groups, the distributions of

the anomaly measure of the condition monitoring data feature of the assets belonging to the groups differ by at least a predetermined threshold.

2. The method of claim 1, wherein the assets are separated into groups according to their ages.

3. The method of claim 1, comprising determining, for each asset, at least one condition monitoring data feature from its condition monitoring data and separating the assets into the plurality of groups according to their condition monitoring data features.

4. The method of any one of claims 1 to 3, wherein the expected asset health index of the groups are normalized values using the expected probabilities of failures as allowable probabilities of failure.

5. The method of any one of claims 1 to 4, wherein the expected asset health index is normalized by the expected probabilities of failures and the maximum allowed probabilities of failure.

6. The method of any one of claims 1 to 5, wherein the groups have different expected asset ages, and the probability of failure of the asset to be evaluated is determined by determining a statistical failure probability from a Weibull model and an equivalent age of the asset to be evaluated, wherein the equivalent age is determined by the summation (over the groups) of the conditional probability of belonging to each group (given condition data as prior event) times the expected asset age of the group.

7. The method of claim 6, comprising determining a relation between asset age and probability of failure of the assets and determining the probability of failure of the asset to be evaluated from the equivalent asset age of the asset to be evaluated according to the relation between asset age and probability of failure.

8. The method of claim 7, wherein the relation is determined by fitting a Weibull distribution to the assets.

9. The method of any one of claims 1 to 8, comprising visualizing the separation of assets into the groups and re-separating the assets into groups in response to a corresponding user input.

10. The method of any one of claims 1 to 9, comprising separating the assets into groups using an unsupervised machine learning algorithm.

11. The method of any one of claims 1 to 10, wherein the operating condition data comprises sensor measurement data.

12. The method of any one of claims 1 to 11, wherein separating the assets into the plurality of groups taking into account the operating condition data of the assets comprises filtering the operating condition data to remove operating condition data that is not correlated with asset health.

13. Method for controlling assets comprising estimating a failure probability for one or more assets according to any one of claims 1 to 12 and controlling the one or more assets according to the estimated failure probability.

14. The method of claim 13, comprising classifying each of the one or more assets into a healthy or unhealthy asset according to the estimated failure probability and controlling the one or more assets according to the classification.

15. The method of claim 14, comprising outputting an alert in case the one or more assets have been classified as unhealthy.

16. The method of claim 14 or 15, comprising triggering a replacement of the one or more assets if they have been classified as unhealthy.

17. The method of any one of claims 14 to 16, comprising taking the one or more assets out of service if they have been classified as unhealthy.

18. A data processing system comprising a communication interface, a memory and a processing unit configured to perform the method of any one of claims 1 to 17.

19. A computer program element comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of any one of claims 1 to 17.

20. A computer-readable medium comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of any one of claims 1 to 17.