

Comments from Reviewer 1 and responses:

General Comment from the Reviewer:

This is a very good, wide-ranging position paper on the subject. The group of distinguished authors have done an excellent job of coordinating such an informative work. It will be of interest to readers of the journal and should be published. Because it is so broad in scope, it is rather long. However, it is hard to see how any individual sections could be reduced. It might perhaps have been better published as a book, but if the journal board is happy with this format, so am I. It can be published as it is. I have suggested some minor points that may be of help to the authors.

- **Response:** We sincerely thank the reviewer for their highly encouraging words and for taking the time to review our manuscript. We are glad that the comprehensive nature of this position paper was well-received. We have carefully addressed all of your minor points and suggestions, which have helped us polish the final text. Furthermore, we agree with your observation regarding the length of the manuscript. In response, we have condensed several sections throughout the paper, including implementing your specific suggestion to restructure Section 5.2.2.

Comment: Section 1.1, p.2 – Consider starting with the formal definition of a drivetrain (it does appear later, so this is a minor point).

- **Response:** As the reviewer correctly noted, a formal definition and detailed explanation of the drivetrain are provided in the subsequent chapter. To avoid redundancy, we decided not to add this information to Section 1.1.

Comment: Section 1.2.2 – A few references here would be useful.

- **Response:** We agree that this section was lacking adequate literature support. We have now incorporated relevant references throughout this section.

Comment: Section 1.2.2 – It would make sense to list these either in order of importance or in the order they appear in the drive train.

- **Response:** We have rewritten this section to present the information in order of importance, as suggested. We decided to use standard paragraphs rather than a bulleted list. However, we improved the order of the main failure modes and components here, and we discuss them in full detail in Section 2.

Comment: Section 1.3.1 – How about presenting these levels as bullet points for quicker reading?

- **Response:** Thank you for this suggestion. We agree that using bullet points makes these levels much easier to read. We have updated this section and used the same bulleted format in other similar parts of the paper.

Comment: L216–219 – It would be helpful to include a sentence giving examples of what these risks might be.

- **Response:** We have added an additional sentence to explicitly provide examples of what these risks entail.

Comment: L225 – Remove “etc.”

- **Response:** The word "etc." has been removed.

Comment: L250–260 – This paragraph feels somewhat out of step with the paper. It is not clear what “Task 43” (and the later “second phase”) refers to, or what the organisational body is. This paragraph reads more as a description of task objectives and does not fit the overall narrative of the paper, which is about status.

- **Response:** We agree with the your assessment that this paragraph felt somewhat out of scope and focused too heavily on project objectives. We have rewritten this text in a more generalized manner, maintaining the overall narrative on the status of the field and citing "Task 43" simply as an example of a project that addresses these data challenges.

Comment: Section 3.1.1 – This is a comprehensive list of ML methodologies, but it lacks a clear takeaway message — e.g., which tools are best or most appropriate, or some guidelines for the operator. Table 1 is good and visual; could some of the extensive text in Sections 3.1.2 and 3.1.3 be replaced with a similarly well-crafted table?

- **Response:** We appreciate the reviewer's insight. To provide a clearer takeaway, we have refined the conclusion of this section to better guide the reader. Regarding the use of a table for Sections 3.1.2 and 3.1.3, we felt that the nuances of these methodologies required narrative explanation. To keep the paper's length under control, we chose not to add a table. We believe the current text explains the methods more accurately than a simplified table could.

Comment: L727 – “This section has summarised...” use past tense

- **Response:** The phrasing has been corrected to the past tense as suggested.

Comment: L731 – The phrase “according to the failure mode” — is it clear in the preceding section which steps are required for which expected failure mode?

- **Response:** Expanding on exactly which preprocessing techniques are needed for specific failure modes would require an entirely new section. Given the current length of the manuscript, we are more inclined to remove text than to add to it. Therefore, we have simply removed the phrase "according to the failure mode" from the sentence to avoid confusion.

Comment: L1076, L1133 – Use the SCADA acronym, as it is now well established in the paper.

- **Response:** We have updated these instances to use the established SCADA acronym.

Comment: L1425 – Autarkic is an uncommon word; I had to look it up. According to Wikipedia, autarky means self-sufficiency, usually applied to societies, communities, states, or economies. Is this the correct word in this context?

- **Response:** We agree that "autarkic" is an uncommon term and was redundant in this context. It has been removed.

Comment: L1462–1466 – The paper should report only work or concepts that have already been achieved, not future plans.

- **Response:** This section has been removed so that the text exclusively reports on achieved work and concepts.

Comment: Section 5.2.2 – CMS Signal Processing – The unnumbered sections on SAW and TFM do not fit well under this title (they are also not unique to gearboxes, which is the focus of Section 5.2). A lot of space is dedicated to SAW and TFM, which are two new sensor concepts, but very little is given to oil debris monitoring, which is well established. This feels out of balance.

- **Response:** The reviewer makes a very valid point. The sections on SAW and TFM were too detailed compared to other methods and made the chapter feel unbalanced. To fix this, we shortened those discussions into two small paragraphs and moved them to the 'Plain Bearing' section.

Comment: L1648 two periods ..

- **Response:** The typo has been corrected.