

From: Prof. Keun Ryu

To: DME3051 Mechanical Design class - Undergraduate students

The following contents are directly taken from a “note” from Dr. Dr. Luis San André at Texas A&M University. Dr. San André sent me this material when I was a Graduate Research Assistance under his guidance.

About literature reviews

A literature review is a critical discussion of the past work performed in a technical topic or specific problem.

First things first.

At the outset, describe briefly the subject to be studied, and its importance on the field of study, or the problems it has solved, or the benefits it provides.

Next, determine the scope of your review and the relevance to the present (your) work.

Here, make sure to specialize your study to the items most relevant to the current work. Be specific and acknowledge that the review is not an extended treatise but a critical evaluation.

Third, start the review. You may choose to approach the subject in two different ways,

- a) a chronological description of the progress made in the area, starting with the inception of the problem or
conception of the device, and then following the advances made in the field, OR
- b) a description of the subject and its major components or issues of interest. These are namely experimental measurements and analytical developments, progress in the complexity of solving flow equations, etc.

In any case for each reference discussed, YOU must provide a short account of the method of analysis used OR a description of the test equipment or procedure. Be specific and discuss the merits and/or shortcomings. Avoid using equations or description of formulas. Indicate what is relevant from each publication, i.e. a discovery of an unknown effect, unexpected test results, good or poor correlation of experiments against theory, effect of measured parameters as an input condition is varied (how damping changes with speed, etc).

BE selective. You cannot possibly recall all references available in the open literature. A complete literature review does not merely lists papers’ titles and authors; it must discuss and criticize the most important contributions to the field. A landmark contribution usually provides a novel method of analysis or testing, or demonstrates the importance of certain parameter(s) on the behavior of the device studied, or introduces novel applications or a variation of the original device with a significantly different behavior, etc.

Close your literature review stating the remaining unresolved issues which merit attention for current or future research (as per your own assessment of the studied material). Provide a brief statement of what you propose

to do and obtain. If experimental, how will these experiments add to the general knowledge? If analytical, how the new or extended model will improve the prediction of the behavior of the studied device ?.

Writing the review or any other technical report

AVOID at all costs the PASSIVE VOICE AND THE PAST TENSE, i.e. sentences like, ... were done were performed..... was reported.....have been had been

Use simple past tense or even better (my choice) use PRESENT tense when discussing a paper, i.e. for example

AWFULL:

Gas seal coefficients were reported by Dumy ()..... The damping coefficients were shown to decrease with increasing rotor speeds.....

The results are shown in Figure X....

SHOULD BE:

Dumy () report(ed) force coefficients for gas sealsThe experiments show the damping coefficients to decrease as the rotor speed increases....Figure X shows the results.

DO NOT mix tenses in a paragraphs !

Use short concise sentences with the basic (and most familiar) structure:

SUBJECT + VERB + PREDICATE + COMPLEMENT

Please note that the complement qualifies the predicate NOT the subject.

AWFULL

To improve the accuracy, Dumy () introduced a 3 control-volume to calculate seal force coefficients.

SHOULD BE:

Dumy() introduced a three control-volume bulk-flow analysis to predict more accurately the seal force coefficients .

DO NOT play with the language. Keep it simple and easy to read. Do not assume the reader has the same level of knowledge (about your stuff!) as you do. Provide sufficient details. A person with average technical level should be able to understand and learn from your work.