Hints on Writing Technical Reports

I) General writing points:

- Make attention on how to communicate effectively.
  - Present your material logically.
  - Organize the article into sections and subsections properly to help its readability.
- Provide accurate information.
  - Be clear and concise.
  - Be consistent with notations and format.
- Get to the point.
  - Keep reader’s attention on the main problem.
- Clearly highlight your contributions.
  - Convey ideas and results in the least possible time and space (illustrate them).
  - Draw the block diagram or flowchart of the algorithm and/or give the pseudocode.
- In the text:
  - Avoid writing short paragraphs.
  - Avoid writing lengthy sentences.
  - Cite and describe all illustrations in the text.
  - Spell the abbreviation in full when first used and include (parenthetically) the abbreviation (e.g., vector quantization (VQ)).
  - First time that the Persian translation of a professional word is used, state the English word in the footnote.
  - Avoid writing English or French words using Persian alphabets.
  - Avoid putting any space between a word and its subsequent punctuation.
  - Avoid starting a sentence with a formula (no full stop before formulas).
  - Define all parameters used in the formula.
  - In illustration captions, cite the main source if it comes from other publications.
  - Use (a), (b), … for subfigures.

II) Structural points:

A technical report (paper, thesis) usually consists of the following components:

1. Title – should be concise and to the point, contain main keywords with less than 10 words or 3 lines. Usually in uppercase and boldface.

2. Abstract – summary of the paper (usually not more than 250 words) including a brief description of the problem, its importance, related existing work, their shortcomings, main proposed solution and its superiority. No cited references, displayed equations, or figure. Write in one paragraph (if possible).
3. **Keywords** – selected for computerized search. Contains about 4-6 words, in the order of importance.

4. **Introduction** – contains the definition, scientific importance, historical background, and relevance to other areas. Properly describe and reference the related work. Give your description about other algorithms. Briefly describe the proposed solution, how it is different from and superior to existing solutions. Last paragraph is a summary of the paper structure.

5. **Proposed Algorithm** – describes the proposed solution. Start with the block diagram of your method. Highlight your contributions. State the model assumptions clearly. Use flowcharts and figures to illustrate the solution.

6. **Experimental Results** – state resource/dataset characteristics (size, resolution, frame rate, etc.), computer type, and used language. Chosen parameter symbols should make sense. Provide a fair and complete performance analysis. Compare the quality and computational complexity of mentioned methods. Use figures, tables, and charts, and try to interpret the results. For results which are stochastic, report both the average value (over multiple experiments) and the confidence interval (or standard deviation).

7. **Figures** – place them immediately after where they are referred to, at the top of the next page, or at the end of the paper. Some space should be left above and below each figure. Should be readable without relying on the accompanying description in the text. All symbols should be explained in the legend. Caption appears in *below* and ends with a *point*. Previously published material must be accompanied by written permission from the author and publisher. Figures should be numbered sequentially in Arabic numerals. Figure numbers should not appear inside parenthesis (e.g., Figure 1).

8. **Tables** – just like the points mentioned for figures. Captions are to be centralized *above* them. All used symbols should be described.

9. **Equations** – number consequently in each section, with the number set flush right and enclosed in parentheses. Refer to equations using parenthesis (e.g., Eq. (1)).

10. **Conclusion** – summarizes what *you* have done, the difficulties, and conclude based on obtained results. Include the future research direction. Preferably written in one paragraph.

11. **Acknowledgement** – comes before the appendix, if any. Should be unnumbered. Funding information may also be included.

12. **Appendix** – contains materials deemed inessential to understanding but included for completeness, and detailed mathematical proofs. Comes before the References. With more than one appendix, number alphabetically. Number displayed equations in the way (A.1).

13. **References** – use more readily available papers. The information should be complete. Follow the determined standard bibliography format precisely. All should be cited in the text. Section should be unnumbered. Include basic (even old) and recent work.

*Prof. S. Kasaei, Jan. 18, 2015.*