**ECE 101: Individual writing project**

**Project description**

Research an area (field) of electrical and computer engineering that you find interesting and prepare a 3-4 page report about it. Three pages of text, not including references, translates into roughly 1,500 words in a single-spaced, 12 pt Times New Roman font. Use this number of words as a guide but please **do not exceed 4 pages overall**. Feel free to include graphic elements, e.g. plots, photos etc. I suspect that the amount of time you will spend on this project will vary widely. However, I do not want you to spend too much time on it so if you find yourself spending more than 10-12 hours or so then you are probably overdoing it and your work on other assignments may suffer as a result. If you spend less than 3-4 hours then you are probably doing a rush job. This estimate is very individual so if you have any concerns or questions please let me know. Project report should be submitted electronically on D2L in either Word or pdf formats and the due date will be posted on D2L.

**Project report**

Your report should contain the following sections (hint: use these as section headings):

1. **Title** (with your name stated somewhere)
2. **Abstract**
3. **Introduction**: how or why did you pick this area? Why should anyone else pay attention? What are going to tell your readers in the rest of the paper?
4. **Description and discussion** of the chosen field. Discuss these items but feel free to add others:
   1. What does it encompass (what is it about)?
   2. Is there anything interesting about its history and how it developed?
   3. Why is it important?
   4. If you were to concentrate your studies in this field, how do you envision your contribution to it? (feel free to engage in dreaming and wishful thinking ☺ )
5. C**onclusion:** make itbrief. What are the main points stemming from your discussion? What do you want readers to remember?
   1. At the very end state how much time you spent on this assignment.
6. **References** – list no more than 15 most important sources that you used in writing your report. My suggestion is to use IEEE format, e.g.
   * For books: [1] B. Klaus and P. Horn, Robot Vision. Cambridge, MA: MIT Press, 1986.
   * For online sources: [2] J. Jones. (1991, May 10). Networks (2nd ed.) [Online]. Available: <http://www.atm.com>
   * For journal articles: [3] P. Khalili and K.L. Wang, “The computer chip that never forgets,” IEEE Spectrum, vol. 52, no. 7, pp. 30-56, July 2015.
   * It is not crucial that you follow this exactly – just try to keep your list organized and legible.

This assignment is meant to encourage you to learn more about “electrical and computer engineering” as a potential career so feel free to explore whatever you find interesting. It is also meant to make you practice your research and writing skills. We will have a librarian discuss various campus and other resources that you can use but your writing skills can be developed only one way: more practice. So, try to write a couple of drafts of you report before settling on the final one. There is a more formal rubric on written reports that explains what is required – read it and pay attention to the stated criteria.

Hints:

* This can be any area so long as it is somewhat related to electrical and computer engineering but please do not stray too far.
* Your chosen area does not have to be something that you want to pursue as a career but it can be something that you find interesting or fascinating and would like to find out more about it.
* At least initially, look for some source that are more oriented towards general audience instead of addressing practicing engineers. IEEE Spectrum is one source I like but there are many others – explore them!
* You should probably start your search elsewhere but a listing of various societies in Institute of Electrical and Electronics Engineers may give you some ideas about the scope and variety of fields in ECE. See <https://en.wikipedia.org/wiki/Category:IEEE_societies>

If you are wondering about the difference between abstract and conclusions, here is something I came across[[1]](#footnote-1)

*The****abstract****is written for the potentially interested reader. While writing it, keep in mind that most readers read the abstract before they read the paper (sounds obvious, but many abstracts read like the authors did not consider this). The abstract should give an impression what the paper will be about. Do not use excessive jargon and use abbreviations sparingly. If possible, it should be understandable for non-specialists and even for people from other fields.*

*The****conclusion****should conclude the paper. Keep in mind that the most readers have read the paper when they read the conclusion. This sound obvious but, again, a lot of conclusions do not read like this. It does not make sense to write a conclusion like "we have shown this and that by using this and that method". Well, this is what the reader has just read. A proper conclusion should tell the reader what she can or could do with the newly acquired knowledge. Answer the question "So what?"*

Note that this can be fuzzy and some of the suggestions are not always applicable. For example, when writing technical papers some jargon is usually unavoidable. In this report your conclusions may not be very strong given that you are not reporting on something novel but give it your best shot. The point is to practice and get better at it.

1. Modified from <http://academia.stackexchange.com/questions/9301/what-is-the-difference-between-abstract-conclusion-and-summary> [↑](#footnote-ref-1)