

Possible points: 100
Due Date: 9th May 2018

5590SL 2018 Final Paper Guide

Paper specifications: You will be writing a short, academic technical paper formally explaining your final project presentations. The intent is to find out how well you can understand, analyze, and explain your final project results and observations using the theory taught to you earlier during this course. In a nutshell, this should read like a mini IEEE journal paper. Length: 2 pages of dense text for the main body (12 point, single space, any sans serif font) not counting extensive white space, references, figures, tables, formulas (they shall go into the appendix). Provide numbered captions for all your figures (on bottom), tables (centered on top), and formulas (to their right) and reference them accordingly in the text.

Each statement in your paper needs to be backed up and justified rationally or experimentally: if the statement has a novel claim which is uniquely yours, put forward your logical/mathematical/experimental argument for it. If it's from a source (directly or implied), mention the reference right there. Referencing should be within the corresponding part of the text, in IEEE style (e.g. [1]). Your referenced source will be primarily your textbook. You may also reference other related peer-reviewed journal papers, but that's not necessary.

Submission: electronically on blackboard by 12 midnight, May 9th, 2018 (please submit as PDF). **IMPORTANT:** This paper is considered as your (take-home) exam 2, and thus should be treated accordingly. The writing needs to be your sole original work, with the exception of the requested, and explicitly referenced theory and background from your textbook (not verbatim but rehashed in your own words). Given the importance of this matter, please see your syllabus and contact me should you have any questions regarding applicable academic rules and plagiarism.

Paper Structure:

You need to expand upon four simple but critical points (underlined):

- 1-**What** (precise problem statement)
- 2-**Why** (importance of the subject matter, AND importance of your approach: is it new? more accurate? more efficient?)
- 3-**How** (your data and methods, described to the level that your experiment is reproducible by your audience)
- 4-Discuss your **results** and conclude.

MAKE SURE YOU HAVE ALL THE FOLLOWING 9 SECTIONS IN YOUR SUBMISSION:

P1-Title: Use a relevant title such as “On Combining PCA and LDA for Face Recognition” or “Fusion of PCA and LDA for Face Recognition” (you may change the suggested titles if you wish)

P2-Your name and declaration of sole authorship (DON'T FORGET THIS!): Assert that you wrote the whole paper all by yourself, in your own words, and that all external knowledge and literature has been referenced properly in the text.

P3-Abstract: This should be a snap-shot of the whole paper, in 200 words or less. Start with a couple of sentences summarizing S1 (please see below), a short but precise summary of data and the utilized computational methods (e.g. feature extraction and classifiers/fusion methods used), and then finish by the most representative results (Include actual numbers) and a sentence on your main conclusion.

S1-Introduction (What and Why)

A short description on biometrics, face recognition, followed by a paragraph on related challenges and multi-classifier systems

S2-Methods (How)

Precisely and concisely describe methodology and classification methods you used. Write at least one sentence for each method, accompanied by corresponding reference. Put formulas in the appendix.

S3-Results and Discussion

This is the main part of your paper and should constitute about 50% of its length. Cogently write down, discuss, and justify the results of your experiments and Observations from all the cases you tried for your project. What trends did you see? You need to justify and explain everything referring to the basic concepts and theory taught in class, citing relevant references from your textbook (**use page numbers and section headings similar to this sample reference [1]**). Elucidate your point by referring to corresponding enumerated tables, figures, and formulas in the appendix.

S4-Conclusion

Start by a sentence summarizing your work, and finish with your major conclusions and take home messages (e.g. on the capabilities and limitations of the used methods given your project experience).

S5-References (IEEE style, minimum 5, from your text book-don't forget page and section!)

Example:

[1] Ethem Alpaydin, Introduction to Machine Learning, 3rd edition, MIT press, 2014, section xx, page yy.

S6-Appendices:

All the tables and figures (along with their captions), as well as the formulas you referenced in the body of your paper go here.

Grading:

This is considered as your (take home) Final Exam (**100 points**)

Details:

1-Adhering to the format (especially inclusion of P2): **10 points**

2-Quality of writing (clarity of concepts and sentences, using correct technical English, logical organization, flow, and presentation of the ideas and findings): **5 points**

3-Adequacy of the abstract and introduction: **5 points**

4-Adequacy, technical depth, and reproducibility of your methods presented in “S2-Methods” section: **10 points**

5-Completeness and soundness/accuracy of the discussions in the “S3-Results” section: **45 points**

6-Success of the conclusion section in capturing the gist of the paper and the project: **10 points**

7-Adequacy and relevance of references: **10 points**

8-Breadth and quality of the appendix items (tables, figures, and formulas, can be partly from your presentation slides): **5 points**