

CS 545 Digital Image Processing: Main Project

Project Overview

Propose and develop an application based research project exploring some aspect of digital image processing. Each project should involve the creation of some form of product. Typically this product is a program that will process images in some fashion.

The project will have three major grading points, and possibly some intermediate. The first step is a proposal. The second is a midpoint status review. The third step is a presentation and paper, along with the final product.

Turn-In (to the appropriate D2L / Learn@UW-Stout dropbox)

This is a minimal list. Additional material may be submitted as appropriate.

Proposal:	Presentation (pptx) file and paper
Midpoint Status:	A status report and any working product (source and “executable” as appropriate)
Presentation:	Final presentation (pptx) and video (mp4) of product demo
Materials:	Final research paper Final product (source code, related materials, and “executable” as appropriate)

Due Dates:

October 29, 2015, 8:00 AM	--> Proposal (with in class presentation)
November 19, 2015, 8:00 AM	--> Midpoint Status
December 08, 2015, 8:00 AM	--> Presentation and Demo
December 15, 2015, 8:00 AM	--> Final Paper and Materials

*All items and details (dates, typo fixes...)
subject to change – always check with
instructors, and watch the deadlines for
dropboxes in D2L (Learn@UW-Stout)*

Proposal Details

The proposal is actually two physical items: presentation and paper

The presentation must be given in class and the pptx thereof must be submitted to D2L

It should be about 7 to 12 minutes in duration

The presentation must address the following topics:

Topic 0: Introduce yourself

Topic 1: Brief overview of the project

Brief introduction and context of research topic

Topic 2: Question/Proposal of the project

Describe the question you are investigating and your hypothesis, or the problem you are going to try to solve and the outcome you expect

Topic 3: Background / Motivation

Historical context, previous work by others

Topic 4: Method / Testing and Design / Planning

Describe how you will be implementing/carrying out your experiment and testing the results. *This may at this moment be a conceptual description, but should address what tools you and methods might use or first experiment with.*

The paper (pdf or docx) must be submitted to D2L

The paper must contain the following sections

Section 0: Title, Name, Abstract

A title for the project, your name and Abstract: Brief summary of the project

Section 1: Introduction/Overview

Brief introduction and context of research topic

Section 2: Question/Proposal of the project

Describe the question you are investigating and your hypothesis, or the problem you are going to try to solve and the outcome you expect

Section 3: Background / Motivation

Historical/Referential context, previous work by self and others...

Section 4: Method / Testing and Design / Planning

Describe how you will be implementing/carrying out your experiment and testing the results. *This may at this moment be a conceptual description, but should address what tools you and methods might use or first experiment with.*

Section 7: References/Bibliography/Acknowledgements

Use an accepted standard of citation within the body of the paper and reference descriptions in this section

The titling and formatting of the sections and the paper itself is at the student's (your) discretion. The resulting paper needs to be of professional quality. It should mimic the typical layout and formatting of a paper for a conference or professional journal.

Midpoint Status Details

This should be a brief (maximum 2 pages) description of where you are at in your project. It should be an update to Sections 3 and 4 of the proposal paper plus some. The details of your project should be well defined and being done at this point. The status report should have details that could transition the proposal paper into a final results paper.

In sum think in terms of the following additions to what was in the proposal.

Section 3: Background/Motivation AND Research

Addition: An account of the research you have done in the general area of interest. This may focus more on methods and results of others (and relation to your efforts).

Section 4: Method / Testing and Design / Planning

Addition: you should have more concrete and explicit details here

Section 5: Results

This is the 'new' section. Describing what you have done and the data and observations you have gathered during your experimentation and testing.

Section 6: Current Conclusions/Report

An explanation/description of where you feel your experiment is at in answering your question, or why it failing, and what direction(s) you will be headed next

Note: do NOT include a copy of the original proposal. Write a new paper that addresses the above four sections, include a title page with your name

Paper must be turned in as a pdf or docx

Final Presentation and Paper Details

The final presentation must be given in class and the pptx thereof must be submitted to D2L
It should be about 15 to 20 minutes in duration

The presentation must address the following topics:

Topic 0: Introduce yourself

Topic 1: Brief overview of the project

Brief introduction and context of research topic

Topic 2: Question/Proposal of the project

Describe the question you are investigating and your hypothesis, or the problem you are going to try to solve and the outcome you expect

Topic 3: Background / Motivation / Research

Historical context, previous work by others

Topic 4: Method / Testing and Design / Planning

Describe how you will be implementing/carrying out your experiment and testing the results. *This may at this moment be a conceptual description, but should address what tools you and methods might use or first experiment with.*

Topic 5: Results

Describe what you have done and the data and observations you have gathered during your experimentation and testing (i.e. the results of doing section 4).

Present this clearly, and describe any patterns, trends, restrictions of results.

Topic 6: Conclusion / Report

Provide an explanation/description of how your experiment and testing answers your question, or why it fails to do so. Also note whether this is the outcome you expected and possible future directions.

Topic 7: References/Bibliography/Acknowledgements

Use an accepted standard of citation and reference descriptions

The presentation must also include a demonstration of the final product. This may be incorporated into the above topics, or done explicitly outside the outline above. This demo may be live or be a recorded video being played as you discuss what it being shown.

The paper (pdf or docx) must be submitted to D2L

The paper must contain sections equivalent to the topics of the presentation, as described above. ***While the sections overlap with previous submissions it is expected each will be updated for this final paper and presentation.***

The titling and formatting of the sections and the paper itself is at the student's (your) discretion. The resulting paper needs to be of professional quality. It should mimic the typical layout and formatting of a paper for a conference or professional journal.

The paper may have a slightly extended deadline beyond that of the presentation's deadline. This is to allow further updates based on audience feedback on the presentation.

Final Materials Details

This includes at least 2 possible sets of items. Each item set should be zipped and clearly named.

Item Set 1 (executable):

All files and materials required to “run” the product

This includes instructions on “how to run” and a set of test input (files)

Item Set 2 (source):

All source files and materials required to “make” the product

Note: in the case of HTML and Javascript these two sets of items could be identical

If that is the case, for item set 2, just upload a text file that says: “second set identical”

Additional (video demo):

It would be nice if a video demonstration of the final product was provided

(1 to 2 minutes), MP4 format: MP4 format of

16:9 ratio: 1280x720 pixels, video codec H.264, with audio as AAC

640x360 pixels also ok if file size gets too big (record big then downsize)