CSCI 495: capstone project

Spring 2017

slides from Gavrill

Who am I?

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- Office hours: by appointment
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- semester-long project
  - an existing or new method applied to a specific problem
  - literature review with method comparison: experiments
  - must involve at least one subfield/topic of computer science
- deliverables:
  - software + reports + presentations
- REQUIRED
  - Completion of the CS major field test (ETS)
  - Location/Time: TBA

Objectives

- Application of what you have learnt in CS (one or more subfields)
- Concept, design, implementation
- Writing skills
- Oral presentation skills
- Professional/work ethics
- Deadlines
- Grading = f(project challenges, results)

- **Bring your own proposal + justification**
- Required:
  - one advisor from CS or closely related field (after instructor permission)
- No website construction, no “front-end” (interfaces etc.)
- problem statement:
  - don’t think about applications only
  - can be a general problem, e.g.,
    - how to better classify data of a particular nature
    - how to predict a sequence of events
    - how to use outliers in a classification problem
    - education methods for CS undergrads
- data:
  - you must have or find the data
- **cite your sources**

- consult with the instructor
- literature review:
  - what exists, pros/cons, existing results
- establish a strong motivation for your project
- work on the/your core method
- one step at a time:
  - first get initial results, validate, and then proceed to the next step
- your results should justify your motivation claims

Date	Topic	meeting	grading
Jan 20	**Introduction to capstone project**	**Y**	
Jan 27	1-page project proposal	N	10
Feb 3	**revised 1-page proposal + presentation**	**Y**	**5**
Feb 10	Work on your project	N	
Feb 17	1-page literature review & results for motivation	N	15
Feb 24	Work on your project	N	
Mar 3	Work on your project	N	
Mar 10	**Midterm presentation + 1-page report**	**Y**	**15+15**
Mar 17	Work on your project	N	
Mar 24	Work on your project	N	
Mar 31	Work on your project	N	
Apr 7	**tentative ETS Major Field Test**	**Y**	
Apr 14	preparation for final report and presentation	N	
Apr 21	**final report + presentation**	**Y**	**25+15**
Apr 28	**Final report + presentation**	**Y**	
May 5	Final report due	N	

- Project proposal
  - problem statement, motivation, initial thoughts
- Revised proposal
  - after looking into the specific problem, consider duration, challenges, data, literature/existing methodology.
  - If no revisions, submit the same proposal
- Literature review
  - for every problem, there have been some solutions, exact or relevant, as systems (commercial) or in research papers and manuals. Study them, find pros, cons, constraints etc, and describe them.
- Results for motivation
  - justify why you are choosing a specific solution, given other existing solutions. The justification has to be experimental, theoretical (if Math is involved), or practical (e.g., application constraints).
  - Your chosen solution has to tackle specific challenges that others do not tackle.

- individual or team projects
- teams ≤ 2 people
- discrete roles = smaller individual projects
- if a team doesn’t specify the roles exactly, the team “loses”
- reports are individual, not per team

- Skipping an assignment = 0 for the assignment
- Second time skipping an assignment = F for class
- Fail to complete major field test = F for class
- Academic integrity:
  - please see the Syllabus section on canvas site, follow the links, and read carefully the related websites.

- All reports should be formatted as,
  - 1 inch margins
  - Arial 11pt fonts
  - single spacing
- top: title, author, team (if any)
- for teams:
  - each report should be specific to the individual's work
  - the team project should be only briefly described
- not following any of the above will result to loss of points
- "1-page report" = 1 full page report
- Exact formatting and meeting the exact deadlines plays crucial role in grading.
- When no page number or limit are explicitly stated, the report can be of any length

- Oral presentations will be:
  - 5 mins long (strictly), unless instructed otherwise
  - the instructor will interrupt after 5 mins
- prepared with slides
  - in formal, technical terms
  - graded based on effectiveness, clarity, technical details
  - on recent advances and not repetition of previously presented material