

# University of Utah

## School of Computing

CS 6170

Final Project Report

Spring 2019

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### 1 Project Description

Your final project can be designed from the perspective of a data practitioner, a developer or a data theorist. As a data practitioner, you could use interesting and nontrivial datasets in various application domains (e.g. marketing, scientific simulation, transportation, business intelligence, etc.), and apply emerging and innovative TDA techniques (possible in combination with other data mining and machine learning techniques) to obtain insights on the data. As a developer, you could develop new software tools or extend existing ones that combine TDA with data mining and machine learning. As a data theorist, you could work towards new theories, algorithms or data structures in the field of computational topology and TDA.

You are responsible to pitch your project idea at a level that is appropriate for your background. Try to challenge yourself, at the same time, be realistic. In the case when you underestimate the difficulty of your project, please make sure that you have something to submit by the due date; choosing a project that is too difficult is not a valid reason for an incomplete.

### 2 Important Dates

- Project presentations: on April 23 (Tuesday, 9:10 - 10:30 a.m.) and April 29th (Monday, 8:00 - 10:00 a.m.).
- Project final report: due April 30 (Tuesday, 9:10 a.m.).

### 3 Final Project Report

Your final project end-of-semester report should be a well-written description of your final project. It should contain at least 8 pages. It should contain the following parts:

1. Team Members: the names and UID of your team members.
2. Introduction: Motivation and a brief project description. What is the main objective of your project? What is an overview of your strategy to achieve your objective?
3. Technical Contributions: What are the technical contributions of your proposed work?
4. Data: What are the type(s) of data your project will be dealing with? How do you plan to get hold of such data sets? What kind of insights are you planning to obtain from your data?

5. Background and Related Work: technical background, together with related work. What are the state-of-the-art techniques in dealing with the data of your interest? What are the differences and similarities between your work and the state-of-the-art?
6. Methods: What methods have you used/developed? What are your strategies in tackling the proposed problem?
7. Results and Insights: What are the results of your proposed project? What are the key insights?
8. Evaluation: What metrics do you use to evaluate how successful your project is? What are the take home messages based on your evaluation?
9. Deliverables: What are your deliverables? (e.g. source code, video demo, etc.) What software (and possibly hardware) do you use? Or in the case you are working on software extensions, what is the baseline software you work with?
10. Conclusions and Discussions: answer specific questions below using 1-2 sentences:
  - What is an overview of your project?
  - What are your project objectives?
  - What questions does your project address?
  - What are the key insights based on your results?
  - What are future directions?

**Your project report is to be submitted as a ZIP file that contains the report itself in PDF, together with deliverables such as video, data (if they can be shared) and source code (if any).**