Course Description

Technology scaling and architectural innovation have fueled the computing hardware industry for decades, which in turn has revolutionized many facets of our society. Unfortunately, poor voltage scaling and rising chip power density are becoming barriers to the continued success of technology scaling. Innovations in general-purpose processing have started to taper off. The shift towards specialization is inevitable. As computing today is dominated by data-centric applications, there is a strong impetus for specialization for this important domain. This special topics course will discuss recent advances and new directions that are being pursued to design data-centric computing systems.

Grading Policy

Class Participation	15%
Paper Presentation	25%
Reviews	25%
Project	35%

Reviews

The purpose of the review is twofold. One is to ensure that you have read the paper. Another is to gather a list of non-trivial observations/questions/insights that could be discussed in the class.

The review should be about a page in length. It should be uploaded through the Canvas website. Each review is due at 10 pm on the Friday before the lecture for which the paper is assigned. Late reviews will not be accepted. The paper to be reviewed can be chosen from the reading list provided on the course website.

Each review should provide a short summary, strengths, weaknesses, and some comments. Your comments should focus on your synthesized thoughts. It could be a combination of the following: (1) An interesting observation on some aspect of the paper. (2) Raise one or more question(s) that a cursory reader wouldn't have thought of. (3) Propose a new solution/idea/extension. (4) Just pick an aspect of the paper that you find it difficult to decipher,

understand it, and explain it in your own words (the bar for the difficulty of the problem should be high).

Project

The course includes a final term project. You are encouraged to define your own project. The instructor will also give a short list of well-defined projects to choose from. You can also define a project that is related to your current research. Students should form groups of two. In a few rare cases, we might allow three members per group if the scope of the project demands it. You are encouraged to start discussing with the instructor about the project as soon as you can.

Honor Code

Paper presentation and reviews should be done individually. You can interact with other students for discussing course materials, provide each other with assistance, and help each other learn development tools. You are encouraged to discuss reading assignments with others, but you have to write the reviews individually.

The Engineering Honor Code obligates you not only to abide by this policy, but also to report any violations that you become aware of. Violations of this policy will be brought to the College of Engineering's Honor Council. For more information on the Honor Code, see Honor Council web page. If you have any doubts about whether a certain level of collaboration is permissible, or any other questions, contact the professor.