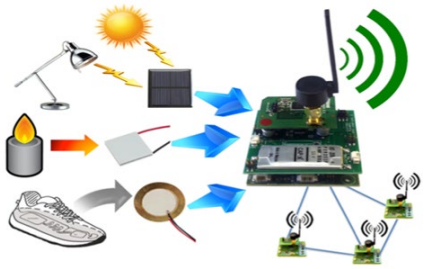
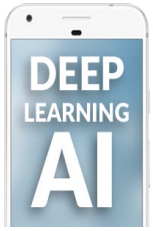
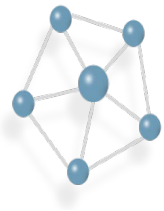
CSCI 8980: TOPICS in MOBILE COMPUTING (Fall '21)

Computer Science and Engineering
University of Minnesota – Twin Cities

Feng Qian, http://fengqian.org






- **Basic Information**

Credits:	3
Lecturer:	Feng Qian (fengqian@umn.edu)
Teaching Assistant:	None
Time/Location:	1:00P-2:15P Monday & Wednesday, Nicholson Hall 345
Zoom Link:	https://umn.zoom.us/j/97690971385?pwd=T2tYUHpxMEhNMUFLbUFMd21mWnZXUT09
Textbook:	None
Office Hour:	Appointment only
Canvas URL:	https://canvas.umn.edu/courses/276455

- **Course Description**

  Mobile computing has become part of our daily life. This course will cover various topics of mobile computing, networking, and systems, including but not limited to: applications of smartphones, cellular networks, embedded sensor systems, localization systems, energy efficiency of mobile devices, wearable and vehicular mobile systems, mobile security, virtual reality/augmented reality, mobile AI/deep learning, and so on. We will discuss research

papers from top conferences, brainstorm cool ideas, and build real mobile systems through team projects.

- **Teaching Mode**
  - The classes will be delivered in person, but the students can choose to attend the classes online over Zoom.
  - The professor's office hours are online over Zoom (by appointment).

- **COVID-19 Precautions**

  This course will be taught in person. However, if the Covid-19 situation worsens, a mid-semester pivot to another teaching modality (e.g., over Zoom) may occur, depending on what the University decides. This may result in changes to the information on these pages.

  To ensure the health and safety of everyone during these difficult times, the following precautions will be taken in this course.

  Vaccination and masking: The University requires that all students are fully vaccinated and that faculty and staff provide a written attestation of their vaccination status. Furthermore, everyone is required to wear a mask while inside a University building, regardless of vaccination status. (More information on these requirements is here.) **Please ensure that you follow these requirements and, to the extent possible, practice appropriate social distancing in the classroom.**

  Stable seating: The University recommends that students try to sit in the same seat for every lecture. This will facilitate contact tracing in the event someone tests Covid-positive during the semester.

  Interaction: Other than the lectures, all interactions with the instructor (e.g., office hours, after-class discussions, etc.) will be online only (over Zoom). Please avoid milling around in groups before/after class.

  Course material submission: To minimize potential virus transmission via surface contact, there will be no exchange of any paper materials during the semester. All homework and project materials will be submitted, graded, and returned online only (via Canvas).

  While the above setup is far from ideal, every effort will be made to make the course as accessible, engaging, and useful as possible. Thanks for your understanding and cooperation.

- **Prerequisites**

  Have taken undergraduate-level Operating System or Computer Networking. Programming experience on mobile devices is a plus for the project, but not required.

- **Grading Policy**
  Project: 42% (Proposal report: 5%, Status report: 5%, Final report: 32%)
  Paper summary: 32%
  In-class presentation: 16%
  Attendance: 10%

- **Course Format**
  In most lectures (called "regular" lectures), we will discuss one or two research papers. First, one student will each give a ~25-minute presentation of a paper he or she selects. Then the instructor will give some overview and cover the remaining paper (if any), followed by discussions. Some lectures are allocated for your project, including idea brainstorming, proposal presentations, and final project presentations. We will also have one or two guest lectures.

- **Your Responsibilities**
  1. Before each regular lecture, turn in a summary for **one** paper.
  2. Do **two** 25-minute presentations at two regular lectures over the semester.
  3. Try your best on the project. Observe three key deadlines of: project proposal, status report, and the final report.

- **Paper Summary**
  You need to submit one (and only one) summary of one paper before each regular lecture. The paper(s) to be discussed in each lecture will be posted in Canvas about one week before the lecture date. If there are multiple papers, you are free to select any one among them. A good summary should include the following key points:

  1. What is the problem the paper tries to solve?
  2. What is the high-level approach used?
  3. What are the key results?
  4. How does this work advance the state-of-the-art?
  5. What are the limitations of the work?
  6. What is the potential future work enabled by this paper?

  The summaries must be submitted electronically via Canvas before the lecture starts. The grade, on the scale of 0 to 3, can be one of the following: 3 (above average), 2 (average), 1 (below average), or 0 (no submission or invalid submission). Late submission will also receive 0 without any exception.

- **Project Guidelines**
  The project is a key component of this course. A project can be either an individual project

or a team project (involving no more than **two** students). The merit of your project will be evaluated by the following metrics.
1. Novelty - How novel is your proposed idea compared to the state-of-the-art?
2. Design - Do you have a good design of your system / measurement / experiments?
3. Implementation - How solid is your implementation?
4. Report - Is the final report well written?
5. Individual contribution - What is your individual contribution within the team (for team project)?

To keep good progress, three documents must be submitted before their deadlines. For a team project, the whole team must submit **one unified version of each document** instead of having each member submitting his/her own.
- Project proposal (1~2 pages single column, 11 pt font).
- Status report (1~2 pages single column, 11 pt font).
- Final report (at least 6 pages double columns, 10 pt font, in ACM format).
LaTeX and Microsoft Word templates for the project report will be available on Canvas.

- **Late Policy**
  Late submissions of paper summaries receive no credit. Late submissions of project documents (proposal, status report, and final report) receive partial credit, as follows.
  Late for no more than 12 hours: 80% of the credits.
  Late for more than 12 hours but no more than 24 hours: 70% of the credits.
  Late for more than 24 hours but no more than 48 hours: 60% of the credits.
  Late for more than 48 hours: no credit.

- **Exams**
  No exam is scheduled for this course.

- **Important Deadlines / Dates**
  Paper summary submission: before each regular lecture starts (**1:00 pm on Mon/Wed**)
  Project proposal submission: **11:59 pm Central Time, 10/5/2021**
  Project proposal presentation: **10/11/2021**
  Project status report submission: **11:59 pm Central Time, 11/9/2021**
  Project final presentation: **12/13/2021 (and 12/15/2021 if needed)**
  Project final report submission: **11:59 pm Central Time, 12/19/2021**