

**EE4-07 2018 COURSEWORK:
PAPER STUDY AND PRESENTATION IN SMALL GROUPS**

The coursework is designed to encourage students to explore beyond the taught materials and cultivate a good taste about important techniques and applications. The coursework will help students to have better answers to the following questions:

- What are the important concepts/techniques that may not be fully covered in the lectures?
- What are the recent developments of the area/topic?
- How can the concepts/techniques be used to solve real life problems?

The final presentations will help students largely broaden their views of the topic, witness how their peers use their judgment to choose a sub-topic to study, and get exposed to critical thinking of others.

Coursework weight. 25% of the overall marks

How it work. The coursework can be divided into three steps.

Put your selected paper to the Google document at Google Drive:

- (1) Check your college email. If you registered for this course, you should have received an invitation email to access the coursework document at Google Drive. If you have not registered for this course, please register and at the same time contact the GTAs using your college email. GTA should be able to add your access to the document.
- (2) Save the invitation for future reference! Make sure your Google account is linked to your college email.
- (3) Follow the link, you can see the Google document for this coursework. You can directly edit the document and add your information. Please hold yourself accountable and only edit the part that you are supposed to change.
- (4) The GTAs of this course will try to give their feedback in two weeks after each milestone.

Step 1 Form a group, choose a topic and related paper(s) by *noon 12:00, 2 November 2018, Friday*.

- A group is expected to have three or four members (four members will be ideal). For the final presentation, each member will have five minutes and hence the group presentation will last 15-20 minutes.
- You choose a topic and relevant papers (book chapters). The topic should not be trivial. Different groups should work on different topics. The relevant information should be put into the Google form.
- GTAs and I will check the appropriateness of the topic and the relevant papers. You may expect our feedback on your choice in two weeks, by 16 November 2018 Friday.

Step 2 Read the papers and prepare your presentation

Between 19 November and 30 November, we will schedule a meeting with each of the group to check the progress and discuss the chosen topic/papers. We will try to decide the final presentation time during this period as well.

Step 3 Presentation (Most likely in the week starting from 10 December 2018. Time and venue will be announced.)

Roughly speaking, each member of the group will present five minutes. After the presentation by the whole group, there will be a question and answer session lasting about five minutes.

Presentation marking scheme. (25% of the overall marks for the module)

Technical contents of the topic/papers (timeliness, depth, breadth, etc.): 10/25

Presentation (understanding of the materials, presentation of key information, communication):

10/25

Performance in addressing the questions: 5/25

SUGGESTED TOPICS

Students please feel free to go beyond the topics/papers listed below.

- LDPC codes
- Polar codes
- Codes for distributed storage systems
 - (the 2015 IEEE Information Theory Society Paper Award) Tamo, Itzhak, and Alexander Barg. "A family of optimal locally recoverable codes." *IEEE Transactions on Information Theory* 60.8 (2014): 4661-4676.
 - (2018 Jack Keil Wolf ISIT Student Paper Award) M. Elyasi , S. Mohajer , "A Cascade Code Construction for (n,k,d) Distributed Storage Systems", *Proceedings of the 2018 IEEE International Symposium on Information Theory*, Vail, CO, USA, Jun. 2018.
- Network coding
- Secure multi-party computation
- Privacy
 - Zyskind, Guy, and Oz Nathan. "Decentralizing privacy: Using blockchain to protect personal data." *Security and Privacy Workshops (SPW)*, 2015 IEEE. IEEE, 2015.
 - Azaria, Asaph, Ariel Ekblaw, Thiago Vieira, and Andrew Lippman. "Medrec: Using blockchain for medical data access and permission management." In *Open and Big Data (OBD)*, International Conference on, pp. 25-30. IEEE, 2016.