

CSE 6539-0010 – Summer 2019
Advanced Studies in Artificial Intelligence: AI in Medicine

Time/Place: Weekly meeting, Lincoln Tower 240

Instructor: Dr. Ping Zhang; 310A LT; zhang.10631@osu.edu; <http://pingzhang.net>

Office Hours: By appointment

Course Description: Introduces students to artificial intelligence in medicine, including the introduction of clinical problems and biomedical data, and the use of data mining and machine learning for risk prediction and stratification, disease progression, precision medicine, subtype discovery, patient safety, and drug discovery.

Prerequisites: Grad standing or permission of the instructor

Course Materials: Papers from the literature

Credits: 3.0 (University definition: a credit hour is 3 hours of work per week!)

Grading Plan: S/U. **Finish at least 9 hours of work per week for 12 weeks.**

- (1) 4 writing summaries (for the purpose of tracking the reading progress);
- (2) 1 term paper proposal (either technical report or systematic review);
- (3) 2 30-min paper presentations;
- (4) 1 term paper presentation;
- (5) 1 term paper with publication potential.

Course Syllabus:

Week	Date	Topic	Assignment
1	05/14	Classification: Clinical risk prediction (1)	
2	05/21	Classification: Clinical risk prediction (2)	
3	05/28	Clustering: Disease progression & subtyping (1)	HW 1 Due; Proposal Due
4	06/04	Clustering: Disease progression & subtyping (2)	
5	06/11	Association: Computational medicine	HW 2 Due
6	06/18	Causal Inference: Computational medicine	
7	06/25	NLP: Clinical text mining	HW 3 Due
8	07/02	Vision: Medical image	
9	07/09	Emerging topic: Fairness	HW 4 Due
10	07/16	Emerging topic: Reinforcement learning	
11	07/23	Emerging topic: Interpretability	
12	07/30	Term paper presentation	HW5 Due; Term paper Due