AAI/CPE/EE 800A Syllabus

Spring 2021

Min Song

The AAI/CPE/EE 800A course is a research course designed for ECE master's students to solve **a specific challenging research problem** in Electrical Engineering, Computer Engineering, and Applied Artificial Intelligence. It is not a course designed for students to learn a particular language or system. Instead, students are required to develop a new model/algorithm/architecture/design/protocol to solve a challenging research problem.

Course requirements:

- Students are required to identify a specific challenging research problem and discuss the problem with their project advisors. Depending on the scale of the problem, the project advisor may decide it's an individual project or team project.
- Students are required to enroll in EE 820A and attend all the seminar talks.
- Each student must work on the project at least 10 hours a week and meet his/her project advisor on a weekly basis to discuss the research. A weekly progress is expected.
- Prof. Min Song is the course instructor. His office hours are Fridays, 2:00 – 5:00 PM. His email address is msong6@stevens.edu. Students are expected to meet Prof. Song on a regular basis to discuss the project progress via Zoom: https://stevens.zoom.us/j/7342599424.
- Required submissions:
  - ⇒ A 1-2-page research proposal; Due at the end of the 2nd week of the semester.
  - ⇒ A 3-4-page mid-stage report; Due in the middle of the semester.
  - ⇒ A 6-8-page final report and a 1-page poster; Due in the final exam week.

  All submissions will be jointly graded by the project advisor and Prof. Min Song.

Critical components of the final report

- Section 1: Introduction. Problem introduction, challenges, and related work
- Section 2: Formal definition and/or formulation of the problem
- Section 3: Your solution (a new model/algorithm/architecture/design/protocol)
- Section 4: Numerical results and analysis
- Section 5: Conclusions
- References

Grading procedures:

- Research proposal 2%
- Mid-stage report 15%
- Final report 70%
  - Sections 1 and 2 20%
  - Section 3 25%
  - Section 4 20%
  - Section 5 and reference 5%
- Poster design 3%
- Meetings and discussions 10%

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Request for Special Problems Course

Submission of this completed form constitutes an enrollment form for a Special Problems course.

Student Name: Neel Haria Student Identification No.: 10446034

Term: ☐ Fall ☐ Winter ☒ Spring ☐ Summer I ☐ Summer II ☐ Year
Year: 20[21]

Course Number (include subject prefix): CPE 800 Credits: 3.0

Title of Problem: Link Prediction Based on Graph Neural Networks

Brief description of the Problem:
Link prediction is a key problem for network-structured data. Link prediction uses score funtions to find if links are likely to be connected. However every heuristic has a strong assumption on when two nodes are likely to be linked which leads to limit their effectiveness on networks where these assumption fails.

Describe how this project will contribute to your educational development:
This project will help me gain immense knowledge on GNN and give me a chance of working with Data structures and algorithms which will play an important role in becoming a Software/Computer Engineer.

Rubric for Grading (Instructor): Please refer to the attached syllsbus.

Approval Signatures:

Neel Haria	1/7/21
STUDENT	DATE
Min Song	1/8/2021
INSTRUCTOR (Print and Sign)	DATE
	1/8/2021
DEPARTMENT DIRECTOR	DATE
DEAN OF GRADUATE ACADEMICS (Not needed for SYS and FE Special Problems)	DATE
REGISTRAR	DATE