TEACHING STATEMENT
Hossam Sharara

One of my primary career goals is to engage in helping students understand and reason about scientific knowledge through teaching at both undergraduate and graduate levels. For the undergraduate level, I am interested in teaching both introductory computer science courses to be able to engage students at early stages and raise their interest in the field, and advanced courses where the students can get more familiar with machine learning research. Examples of advanced courses that I am interested in teaching include data mining, machine learning, artificial intelligence, social network analysis, and agent modeling. In addition, I am also excited about developing graduate, specialized cutting-edge courses on network modeling that will attract more graduate students to this rich area, and help the university benefit from their research.

I have acquired extensive teaching experience throughout my graduate studies, as a teaching assistant at both Alexandria University and University of Maryland, and as a lecturer in software training centers. I started my teaching experience at Alexandria University where I led the discussion sections for Introduction to Programming (CS 121), Data Structures I (CS 122), Data Structures II (CS 223), Digital Signal Processing and Transmission (CS 332), Operating Systems (CS 333), Artificial Intelligence (CS 4E3), and Technical Writing (HS 412). My teaching duties included presenting and discussing complimentary material to what was provided in the lectures, solving problems on the board, designing and implementing programming assignments, creating quizzes and mid-term exams, grading, and monitoring students’ progress. In addition to teaching experience, I was also responsible for heading laboratory sessions for Digital Systems I (CS 231) and Linear Control Systems (CS 241), where I guided the students through hands-on experience with building physical circuits.

At the University of Maryland, I was a teaching assistant for Introduction to Low-level Programming Concepts (CMSC 212) and Discrete Structures (CMSC 250). My duties included implementing student assignments in order to be able to help them in office hours, grading written homework, programming assignments, projects and exams. In addition to my experience as a teaching assistant, I worked as a tutor in a training center for software developers and IT professionals in Alexandria, Egypt. I was responsible for creating the curriculum and leading the lectures for multiple courses, including Introduction to Microsoft Office, Introduction to Java, and Database systems.

My teaching philosophy is based on three pillars: respect, engagement, and practical investigation. A successful teacher should always have respect for the students. Understanding the individuality, needs, and goals for each student is the key to a successful relationship. This includes being open to different questions, available for their requests, attentive to their individual progress, and helpful in addressing their needs and concerns. Engagement is also another key aspect that helps the students excel in their courses. Active participation should be encouraged whenever possible, in both curricular and extra-curricular activities. I envision a successful professor as the one who engages with students, which is major aspect in tracking their progress, and understanding their individuality. Finally, I believe practical investigation is an essential pillar in the educational process, especially in the field of computer science. Student should be encouraged to brainstorm about different concepts and experiment their ideas, even if they are not completely correct. This allows the students to analyze their ideas, investigate their shortcomings if any, and refine them. I think this is an effective way of learning new concepts, while enriching the students’ critical thinking and research skills.

In addition to these pillars, I also believe that the courses should always be kept as close as possible to the state of the art, to tie the course material with what the students experience in their technological lives. Group collaboration should be encouraged to prepare the students for working with different teams throughout their careers. Finally, the foundation for a successful course is a clear and fair grading policy, which provides a faithful assessment of the students’ progress.