

# Teaching Statement

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## **Philosophy:**

Throughout my college career, my numerous excellent instructors have inculcated my teaching philosophy. My philosophy is based on my beliefs in student engagement and my enthusiasm to teach and mentor students. From my plentiful experience in the classroom, I believe that evoking curiosity in students helps them to learn details in a topic. Such a curiosity arises in students, not only from assignments and exams, but also from presenting a topic in an understandable manner and providing recent advancements in that topic. A good instructor should act as a mentor to students, by interacting with them in and outside the classroom, identifying and encouraging each student's unique skills, and motivating them constantly in the right direction towards their futures.

My four years of experience as an invited lecturer, a teaching assistant, and a student have blessed me with the knowledge of teaching and learning. From these experiences, I believe that lecturing a diverse group can help to exchange knowledge with others and satisfy my craving to explore and evolve my teaching skills. I see that it is the responsibility of an instructor to create a research environment for students to motivate them to explore new techniques on solving a problem. From my experience in the doctoral program, I believe that an inquisitive mind can help a person to think critically, and contribute more ingenious solutions to the real world problems.

## **Experience:**

My pursuit to acquire the doctoral degree has also provided me opportunities to give guest lectures, mentor, and interact with fellow Computer Science students of University of North Carolina at Charlotte. These opportunities were all rewarding, and allowed to test my teaching skills in both formal classroom sessions and informal critique sessions.

**Teaching Assistant:** Since 2016, I have served as a teaching assistant for both graduate and undergraduate '*Data Mining*' and '*Cloud Computing*' courses taught by Dr. Angelina Tzacheva. At this time, I frequently interacted with students, designed practical assignments, and graded exercises, projects and exams. I loved attending all my TA classes to answer student queries, regarding the course lectures and assignments. I also enjoyed getting feedback from students to improve the clarity of assignments that I created. I also conducted office hours twice a week to be constantly in contact with students, discuss their project ideas, and technical difficulties they had during the project works. I have been a TA for multiple online courses provided during the summer semesters. The short duration of the summer semester and lack of face-to-face discussions proved extremely challenging to help students with their assignments. To overcome this scenario, I created video tutorials that provides background knowledge required for all assignments. Many students found these videos extremely helpful since it reduced the need for face-to-face meetings to understand the theory concepts.

**Invited Lecturer:** I have given multiple invited lectures to graduate students from CS and non-CS backgrounds. One challenging experience that I had encountered was providing a month lecture for the *Applied Machine Learning* course, mentored by Dr. Siddharth Krishnan, for Computer Science and Business school students. These lectures included topics and assignments, which required high-level algorithmic and Python programming skills. This experience helped me to research multiple teaching methodologies and improve my presentation skills for non-CS students. Particularly for this course, I followed the *flipped classroom* approach, in which I created small take-home tutorial exercises and their corresponding lecture slides. During the lecture hours, I gave a short review on take-home materials, provided quizzes with real-world problem solving questions, and conducted group discussions and flash presentations.

**Other experiences:**

1. **Teaching seminars:** I have attended multiple teaching seminars in the years of 2016 and 2017 under the supervision of Dr. Zbigniew Ras. During these seminars, I participated in committee meetings with other faculty members and fellow students. In those meeting we also discussed various topics like innovations in teaching, and effective teaching methods for undergraduate students. Also, we had opportunities to present latest research papers in teaching methodologies and discuss their advantages and disadvantages for US education

2. **Mentoring:** I have mentored 6 graduate students during my pursuit for the doctoral degree. They worked alongside with the researchers in our lab and participated in my doctoral research. I created short exercises and tutorial videos for my students to acquire technical skills and knowledge required for the research. I met at least thrice a week with my students to study their research progress, address their problems, and motivate them to think of alternative solutions. All those works has been published in reputed conferences like *IEEE Big Data*, *IEEE Conference on Machine Learning and Applications*, and journals.

3. **Critique sessions:** For the past one year, I was fortunate to be a part of lab critique sessions organized by Dr. Siddharth Krishnan. As a senior student in the lab, I organized several presentations in the lab. During these meetings, I used to present various ongoing research topics in data science, critique other presentations, and brainstorm pros and cons of state-of-the-art research works with the lab.

**Teaching Interests:**

My multi-disciplined research career has made me feel credible to teach and mentor students from multiple fields of study. I would be happy to teach any introductory algorithmic, database and programming courses for undergraduates. At the graduate level, I can teach *database management systems*, *algorithms and data structures*, *cloud computing*, *machine learning*, *data mining and network science* courses. Given freedom, I would like to create courses called '*Data Mining in Social Media*' and '*Dynamics of Social Networks*'. Apart from adding more elective options for students, these courses will give an idea on existing models, algorithms, and applications in network-based data science. These courses will include interesting applications ranging from learning structure and dynamics of networks, to event prediction and forecasting from the massive networks. These courses also help my research team to find extraordinary research ideas and potential student collaboration.