Teaching Statement - Mallesham Dasari

Teaching is one of the most effective and powerful tools for learning. I believe everyone is equally entitled to access such valuable resource in the broader goal of human advancement. I am strongly committed to provide an inclusive and stimulating educational environment where every student can excel in developing critical thinking, problem solving, and decision making skills.

Teaching and Mentoring Experience

I had an opportunity to teach the **CSE570: Wireless and Mobile Networks** course at Stony Brook. This is a graduate level course teaching the fundamental principles of wireless signals and mobile computing. I co-designed the course along with my doctoral advisor and created homework problems, projects, and exams. I taught this course in the Spring of 2020, which was a unique experience for me with the transition from classroom teaching to online because of the pandemic we faced in the middle of the semester. The students from the class showed great strength and inspired me from their strong desire to learn the course material despite the pandemic affecting their daily life. I also received an overwhelming positive feedback from students during the course evaluations that further encouraged me to pursue a teaching career.

I also had an opportunity to teach the **WISE380: Women in Science and Engineering** seminar at Stony Brook, in the Spring and Fall of 2019. The course focuses on teaching undergraduate women students about research methodologies in STEM disciplines. I designed the course content using my expertise specifically on building virtual reality (VR) games using the Unity game engine. I felt that VR was especially appropriate for this course because the content is not only engaging but also easier for students to visualize and experience the outcome of their work with VR headsets. The undergraduate women students liked this course very much and had the opportunity to learn emerging research problems in the area of VR systems.

In addition to classroom teaching, I have mentored students from underrepresented backgrounds as part of IgniteCS, a Google program to teach computer programming to rural middle school students and at OurCS conference, a program to improve gender balance in computing research at CMU. As a postdoc, I mentored several PhD students at CMU in their research projects. I independently advised Tao Jin, a first year PhD student in a 3D scene capture project, that has resulted a paper submission to NSDI 2023. I am currently advising another PhD student— Edward Lu in a hybrid rendering project for massive 3D AR models.

Teaching Plan

Given my research background and industry experience as a systems engineer, I can teach core courses in the area of computer networks, operating systems and multimedia systems. In particular, I would be comfortable teaching the following undergraduate and graduate level courses:

- Computer Networks
- Multimedia Systems
- Augmented & Virtual Reality
- Operating Systems
- Distributed Systems
- Mobile Computing & Wireless Networking

Finally, based on my expertise, I would like to create a new course **Immersive Computing** covering recent advances in AR/VR— localization, tracking, spatial web, and immersive (3D) content delivery. The course will bring an interdisciplinary expertise to students, with material from computer vision, graphics, networks, and systems. I imagine the course to be hands-on that involves creating and deploying applications on Hololens and Oculus Quest headsets. I would also plan to teach a subset of the classes completely in VR, with students learning virtually through VR headsets. I believe such a course will engage students and teach them a wide range of topics in an exciting applied setting.