CS 49995/59995 Human-Robot Interaction 3 credit hours

Instructor's Name: Jong-Hoon Kim

(Textbook Title, Author, Year)
No Textbook is required, but selected textbook sections and conference/journal articles will be assigned and read as part of this course. Reading and responses to reading questions as well as discussing and reporting of the topic/papers are definitely significant parts of the course requirement to be completed.

(Other Supplemental Material)
[Recommended texts for your references]
- New Frontiers in Human-Robot Interaction,
  Edited by Kerstin Dautenhahn and Joe Saunders
- Context Aware Human-Robot and Human-Agent,
  Edited by Nadia M-Thalmann, Junsong Yuan, Daniel Thalmann, Bum-Jae You

Course Content:

Prerequisites or co-requisites: special approval.
Required, elective, or selected elective

Goals:

Outcomes:
(Slashed with CS 59995) Human-Robot Interaction (HRI) is the study of interactions between humans and robots dedicated to understanding, designing, and evaluating robotic systems for use by and with humans. HRI is a multidisciplinary field that incorporates human-computer interaction, artificial intelligence, robotics, natural language understanding, design, and social sciences. Interaction between humans and robots may take several forms, but are generally categorized by how close in proximity the humans and robots are to each other such as remote, proximate, and hybrid interaction. In the class, students will learn the fundamental technologies and theories in each category, and blend this knowledge with various case studies and lab activities.

Topics to be Covered:
Students completing this course will
• learn the theoretical & practical base for robot design and human interface design
• become familiar with Human-Robot Interaction
• deepen the knowledge of the robots and their components
• learn how to measure the performance in Human-Robot Interaction
• analyze the problems and challenges on Human-Robot Interaction
• study the robot applications which have human in loop
• understand how to perform secure, safe, user-friendly, and smart tasks on robots
• Hand-on-Experience with Robot-Operating System (ROS), Single Board Computer (Raspberry Pi), Embedded System (Arduino), Sensors, Python, Natural Language Processing, Image Processing