

## **Complete List of Project Topics for Multimedia Communications, Winter 2022**

- 1. Multimedia Algorithm/Protocol explanation (preferred approach):** Choose a multimedia algorithm/protocol or concept, preferably not addressed in this course, and implement a short course about it using audiovisual content (Java, flash, video, etc.).
- 2. Implementation of a haptic-based game:** Build your own haptic-based hardware system (microcontroller + sensors and actuators) and a simple game as a proof of concept.
- 3. Artificial Intelligence for wearables:** Develop your own machine learning or deep learning algorithm and analyze data from wearables, such as a smart watch like the fitbit, and show the results including visuals.
- 4. Digital Media Special Effects:** Create a Kinect-based or mobile phone camera-based application to interact with a mobile robot or smart phone through a PC, using gestures.
- 5. Haptic and Virtual Reality Interaction:** Explore existing HCI-techniques (based on haptic and VR interaction) and build a proof of concept system.
- 6. Media, sensors and actuators: Wake up alert for sleepy drivers:** Design a program that can be put on a mobile device that will check the driver's face expressions and alert the driver by audio and send a text message to a friend.
- 7. Ambient Intelligence via Smart Phones:** Design and implement a smart home appliance system that is self-regulated, and remotely controlled by users via smart phone and also controlled by a combination of sensed information.
- 8. Smart Dumbbell:** Recognition of number of reps with good accuracy, using a dumbbell, and recording information in the smartphone.
- 9. Kinect Puzzle Game Design:** The Kinect camera takes a photo of the user and then shuffles it. The user has to put all the pieces together in their right places in order to get his/her complete picture again. Similar ideas to assist post-stroke rehabilitation patients are also allowed.
- 10. Virtual Writing on Board using Kinect:** Design an application that lets you draw and write on a virtual board using only hand gestures. The Kinect Virtual Board gives users the ability to write information and draw shapes via the Kinect's sensor.
- 11. Design and Development of Intelligent Interfaces or Gadgets:** such as a smart mirror, smart clothes, smart chairs, smart home appliances, smart energy consumption, that are controlled by users via smart phone and also by a combination of sensed information.