**CSE 572 Data Mining Assignment 1**

**Due Date: August 28, 2017**

**Smart Diet Assessment Project**

Obesity is one of critical factors for well-being since it can increase the risk of many diseases such as diabetes, chronic kidney disease, metabolic disease, cardiovascular disease, etc. To help the dieters, many researchers and companies purposed the diet monitoring systems. However, these system could not solve the low adherence problem. Smart diet assessment system such as MT-Diet (<https://impact.asu.edu/MTDiet.html>) are being recently proposed. In the system, there are two main tracks: (1) image based food type identification and (2) gesture based nutrition intake information retrieval. In this course, we will concentrate on only the second track.

*Gesture based Nutrition intake information retrieval*

We consider estimating the food amount that the user consumed in real time in units of calorie intake per second. As the solution of this problem, we propose a project, gesture based nutrition intake information retrieval by analyzing the user eating gesture with wearable armband or wristband sensors.

In this project, there are five phases. Assignment 1 is the phase 1.

**(a) Phase one (Due August 28) – Data collection**

Task1 – Form a group of 4 and make an appointment for data collection.

Task2 –When each group comes to the iMPACT lab at the appointed time, TA will provide the devices and software for the data collection. Each group should designate one person who will be recorded while eating. You can prepare your own food, or buy food from somewhere or your group mates can treat you to some good food. Anyhow you should bring your food to IMPACT Lab. Make sure that the food you make is eatable using both spoon and fork. The TA will give you a plate with at least three sections. You have to divide your food nearly equally into these three sections.

Task3 – Data Synchronization. When you first start eating do a unique gesture that can be easily identified in the accelerometer sensor so that we can synchronize the time stamps of the video and the accelerometer data from the wristband.

Task 4 – Eat from each section of the plate once using spoon and then using fork and repeat until either the plate is empty or you cant eat anymore.

**Achievable full credit for Phase 1 - 100**

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| **Condition** | **Grade deductions** |
| 1. **Made an appointment in time** 2. **Collected data** 3. **No wrong video annotation** 4. **No wrong gesture data labeling** | **0** |
| **No data collection** | **100** |
| **No-show in appointed time or late** | **30** |
| **Wrong synchronized** | **50** |

**Sign up sheet for groups**

Please go to the link below to sign up for a time slot.

<https://doodle.com/poll/474tim5y77hggdv6>