Midterm project: Multivariate Data Analysis (20636)

April 22, 2020 9:00 AM ~ April 22, 2020 23:59:59 PM

* Each student should use the data file with her/his own student ID

모든 학생들은 각자의 ID가 적혀있는 자료를 사용하면 됩니다.

* Each file has group, class, and several coordinates of marked position.

각 파일은 group, class, 그리고 몇몇 coordinate 변수들을 가지고 있습니다.

* Try to analyze your data as much as you can, and explain your result in detail.

수업시간에 배운 내용을 가능한 많이 활용하여 분석을 하면 됩니다.

* In the report, you have to show what you learned in this class as much as you can, including exploratory data analysis with plots.

자료를 살펴보는 과정을 포함하여 수업 내용에서 배운 것들을 report에 잘 나타내면 됩니다.

* R codes should be included in the report.

Report에 분석에 이용한 R code를 반드시 포함시켜야합니다.

* You should turn in before **12:00 AM, April 23, 2020**

4월 23일 자정 전까지 제출해야합니다.

* When you test your hypothesis, you can assume that all populations follow normal distribution with same variance-covariance matrix.

분석과정 중 가설검정을 할 때에는 정규성, 등분산 가정을 해도 됩니다.

VARIABLE DESCRIPTION

Variable	Description
group	two groups "A" or "B"
Class	Integer. Ranges from 1 to 5 1=Fist(with thumb out) 2=Stop(hand flat) 3=Point1(point with pointer finger) 4=Point2(point with pointer and middle fingers) 5=Grab(fingers curled as if to grab)
X0~X11,Y0 ~Y11, Z0 ~ Z11	coordinates of marked position.

DATA DESCRIPTION

A Vicon motion capture camera system was used to record 12 users performing 5 hand postures with markers attached to a left-handed glove. A rigid pattern of markers on the back of the glove was used to establish a local coordinate system for the hand, and 11 other markers were attached to the thumb and fingers of the glove. 3 markers were attached to the thumb with one above the thumbnail and the other two on the knuckles. 2 markers were attached to each finger with one above the fingernail and the other on the joint between the proximal and middle phalanx.
The 11 markers not part of the rigid pattern were unlabeled; their positions were not explicitly tracked. Consequently, there is no a priori correspondence between the markers of two given records. In addition, due to the resolution of the capture volume and self-occlusion due to the orientation and configuration of the hand and fingers, many records have missing markers. Extraneous markers were also possible due to artifacts in the Vicon software's marker reconstruction/recording process and other objects in the capture volume. As a result, the number of visible markers in a record varied considerably.

Each one has randomly selected variables(coordinates) and observations from the full data.