

### **Instructions to run the code for five key cross sections processing of the database:**

1. Copy '**...\data processing for five key cross sections**', '**...\INITIAL INPUT**', and '**...\CS RAW DATA**' folders to '**...\MATLAB7\work**'.
2. To process five key cross sections:
  - To process E cross sections, open and run **PCA\_database.m**
  - To process UAF, UAM, LAM and LAF cross sections, open and run **Processing\_CS\_neu\_non\_E.m**, **Processing\_CS\_135\_non\_E.m**, **Processing\_CS\_90\_non\_E.m** and **Processing\_CS\_max\_non\_E.m**.
3. The result is shown in '**...\INITIAL INPUT**'.

#### **NOTE:**

- The files in '**...\CS RAW DATA**' are Microsoft Excel files (.xlsx).
- For UAF, UAM, LAM and LAF cross sections, each file contains data of **one** key posture from **all** participants of a group e.g. Asian female, Asian male, etc. The data are distances of 16 sampling points towards the corresponding key cross section's centre. For each key posture and participants' group, the data are arranged as shown in the table below.

<b>Participant 1</b>	...	<b>Participant n</b>
Distances of UAF		Distances of UAF
Distances of UAM		Distances of UAM
Distances of LAM		Distances of LAM
Distances of LAF		Distances of LAF

For E cross sections, the distances of 16 sampling points of a fully extended arm are saved in a separate file from those of the remaining key postures. For E cross sections of a fully extended arm, the data is arranged as shown in the table below.

<b>Participant 1</b>	...	<b>Participant n</b>
Distances of E		Distances of UAF

For E cross sections of the remaining key postures, the data is arranged as shown in the table below.

<b>Participant 1</b>	...	<b>Participant n</b>
Distances of E at 135° flexion		Distances of E at 135° flexion
Distances of E at 90° flexion		Distances of E at 90° flexion
Distances of E at maximum flexion		Distances of E at maximum flexion