請先下載本週上課資料

- [http://www.ym.edu.tw/~cflu](http://www.ym.edu.tw/~cflu)
- 點選左欄 [課程資料] → [MATLAB圖形使用者介面]
- 下載第10週 [上課資料] materials_L10.zip，檔案大小約4.8MB

本週內容

- MATLAB guide介紹
- 訊號濾波器GUI實作
- 檔案輸入與管理
- 訊號繪製與呈現
- 訊號濾波器
- 訊號分段與平均
- 檔案輸出-Excel, print

GUI design
MATLAB guide (key in guide in command window)

- Graphic User Interface Design Environment

Properies of an Object (double click on it)

guide Structure – initialize GUI

Put *.m and *.fig together or error!!
guide Structure – initialize GUI

% --- Executes just before guide_test is made visible.
function guide_test_OpeningFcn(hObject, eventdata, handles, varargin)
% This function has no output args, see OutputFcn.
% hObject handle to figure
% eventdata reserved - to be defined in a future version of MATLAB
% handles structure with handles and user data (see GUIDATA)
% varargin command line arguments to guide_test (see VARARGIN)
% Choose default command line output for guide_test
handles.output = hObject;
% Update handles structure
guidata(hObject, handles);
% UIWAIT makes guide_test wait for user response (see UIRESUME)
% UISETUP makes guidata wait for resuming UI processing

Transfer data in guide
• All object handles and Data were saved in "handles"!

• function Test_Callback(hObject, eventdata, handles)
  % hObject handle to guide_test (see GCBO)
  % eventdata reserved - to be defined in a future version of MATLAB
  % handles structure with handles and user data (see GUIDATA)
  handles.Data.testvalue = 10000;
  guidata(hObject, handles); % Update handles structure

• gcf: get handle of current figure
• gca: get handle of current axes
• gco: get handle of current object
• gcbf: get handle of callback figure
• gcbo: get handle of callback object

Example – change figure color
• set(gcf,'color',[0 0 0])
• set(handles.figure1,'color',[0 0 0])
Example – WindowButtonFcn

Similar setup for other ButtonFcns

SignalProcUI

Modify Properties
- String/Title: appeared strings
- Tag: handle names
- Resize: ‘on’
- Units: 'normalized'
Processing Diagram – Load & Display

- Load data: demo data: data.dat (ASCII format)
- Display signal
- Update listbox
- Switch channel
- Display mode
  - Whole series
  - A segment
  - Slider on
    - Display signal
  - Slider off
    - Display signal
- Switch segment

Processing Diagram – Filtering and Averaging

- Select a filter
  - filter_2sII.m
  - sigfilter=filter_2sII(sig,f,s,n,type)
- Enter cutoff
- Filtering
- Display signal
- Enter onsets & period
  - Plot event onsets
  - Average Events
  - Display Avg. signal
- Print
- Save
- Reset

THE END

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