

MATLAB GUIDE介紹與濾波器 應用實作II

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請先下載本週上課資料

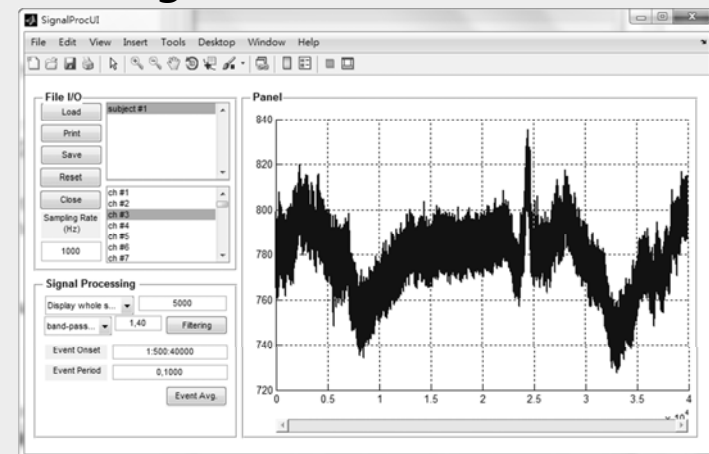
- <http://www.ym.edu.tw/~cflu>
- 點選左欄 [課程資料] → [MATLAB圖形使用者介面]
- 下載第11週 [上課資料] [materials_L11.zip](#) · 檔案大小約4.8MB

本週內容

- MATLAB guide架構
- 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

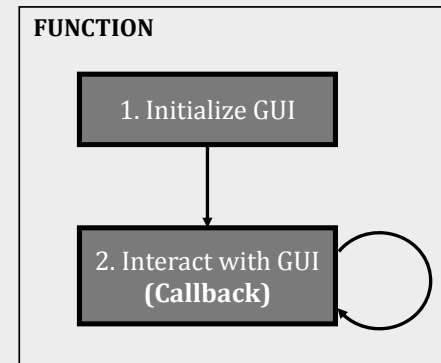




MATLAB guide架構

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Core Concept of GUI



Learn how to deal with

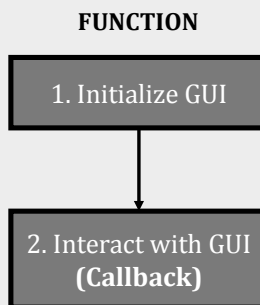
- handle
- Data

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Core Concept of GUI

Self-organize

- Command lines
- Define in 'start' section
- Transfer data using **global** variables
- **if-elseif-end** structure

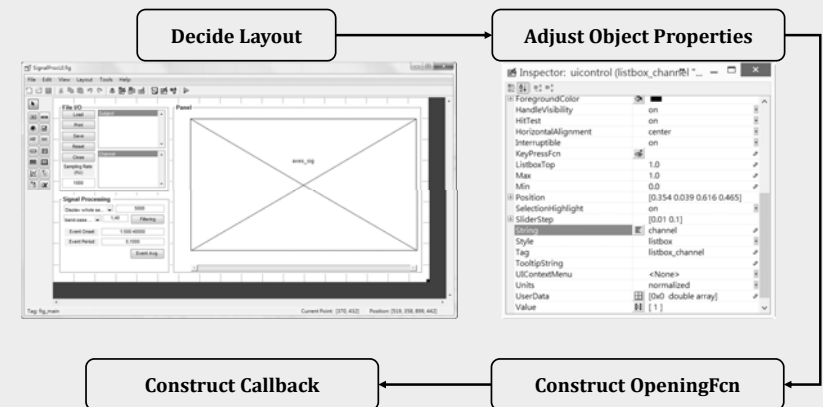


Using guide

- Design environment & Command lines
- Define in 'OpeningFcn' section
- Transfer data using **guidata** variables
- **Sub-function** structure

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guide GUI Creation



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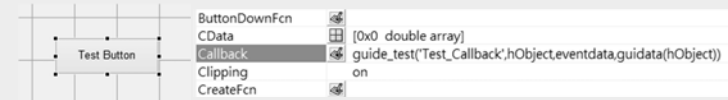
guide Structure – initialize GUI

```

47 % --- Executes just before guide_test is made visible.
48 function guide_test_OpeningFcn(hObject, eventdata, handles, varargin)
49 % This function has no output args, see OutputFcn.
50 % hObject handle to figure
51 % eventdata reserved - to be defined in a future version of MATLAB
52 % handles structure with handles and user data (see GUIDATA)
53 % varargin command line arguments to guide_test (see VARARGIN)
54
55 % Choose default command line output for guide_test
56 handles.output = hObject;
57 % Create other objects here!!
58 % Update handles structure
59 guidata(hObject, handles);
60
61 % UIWAIT makes guide_test wait for user response (see UIRESUME)
62 % uiwait(handles.figure1);
    
```

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guide Structure – Callback

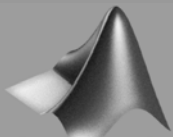


```

76 % --- Executes on button press in guide_test.
77 function Test_Callback(hObject, eventdata, handles)
78 % hObject handle to guide_test (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81
82 % Add commands here!!
83
    
```

guidata(hObject, handles); % Update handles structure

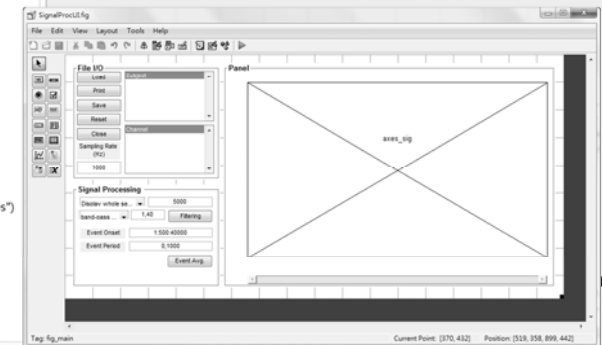
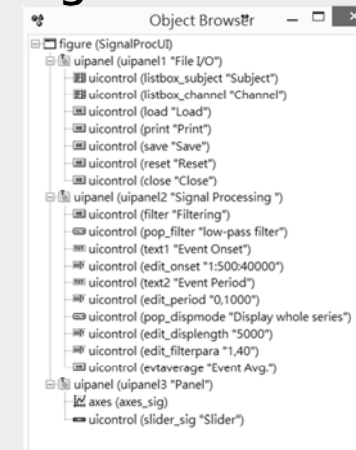
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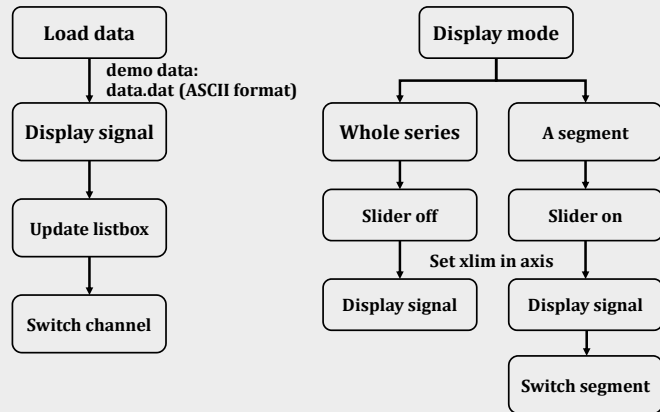
訊號濾波器GUI實作

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SignalProcUI



Processing Diagram – Load & Display

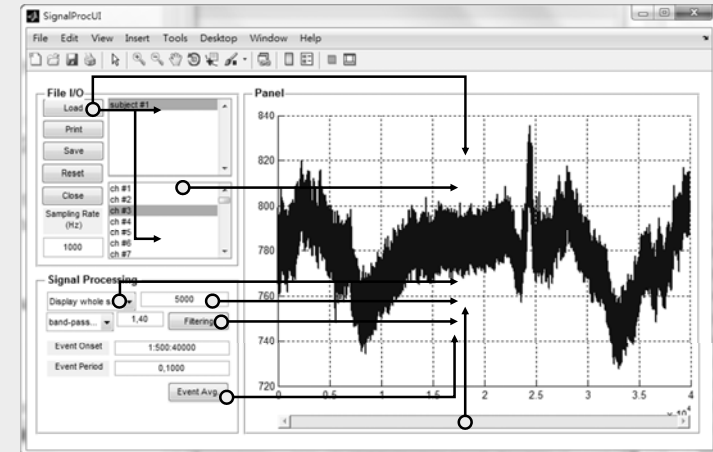


materialsL11\01Load

materialsL11\02Disp_Signal

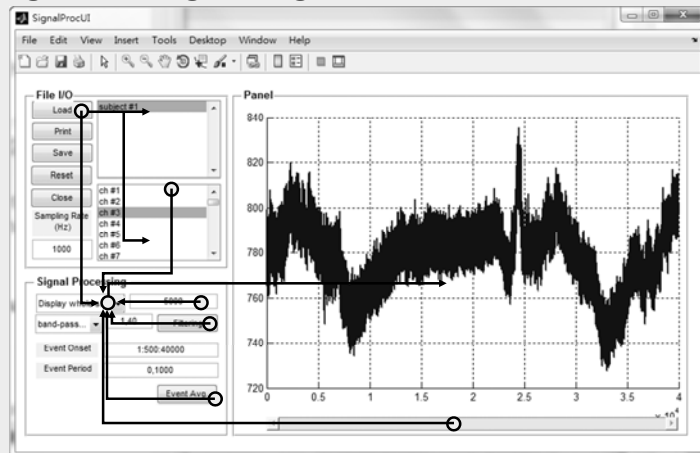
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Programming Design – Display Signals



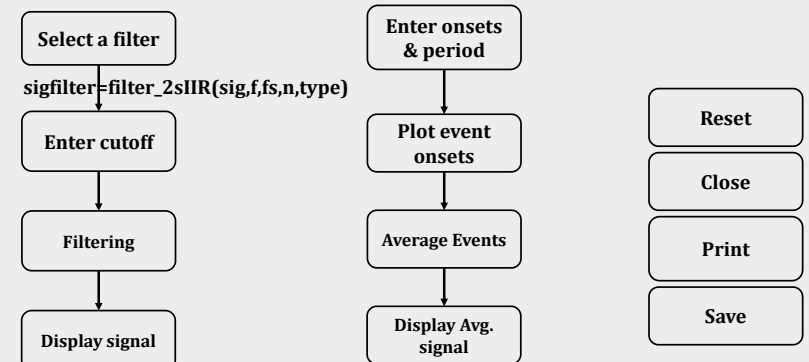
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Programming Design – Callback in One



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Processing Diagram – Filtering and Averaging



materialsL11\03Filter

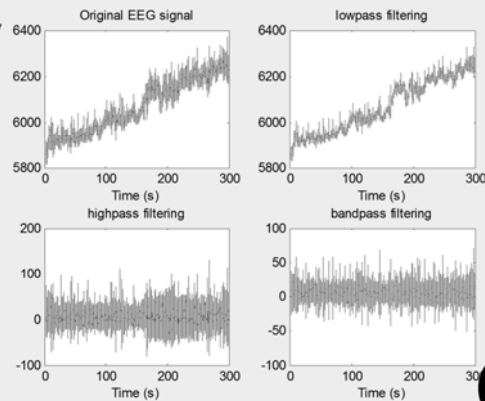
materialsL11\04Evt_Average

materialsL11\05Full

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Signal filtering

- Select a specific frequency band
- Remove high-frequency noise from machine and environment
- Eliminate low-frequency signal drift



Lesson 7, Digital Filter design

http://www.ym.edu.tw/~cflu/CFLu_course_matlabsig.html

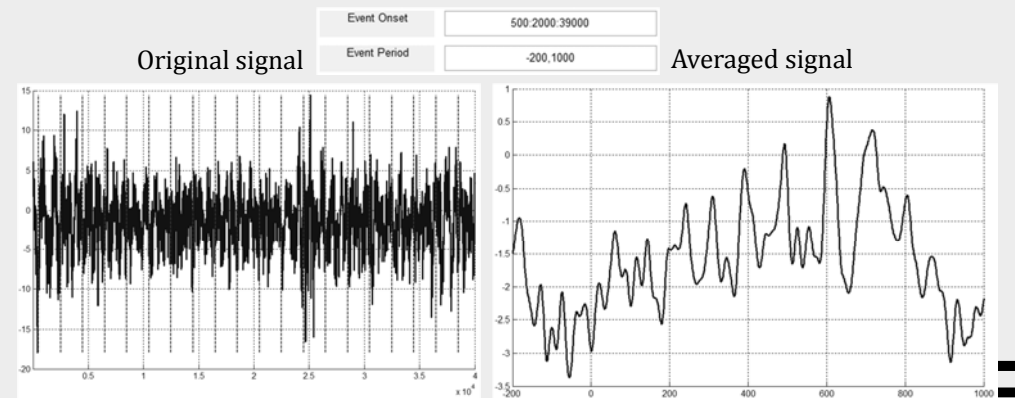
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Event Average



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THE END

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