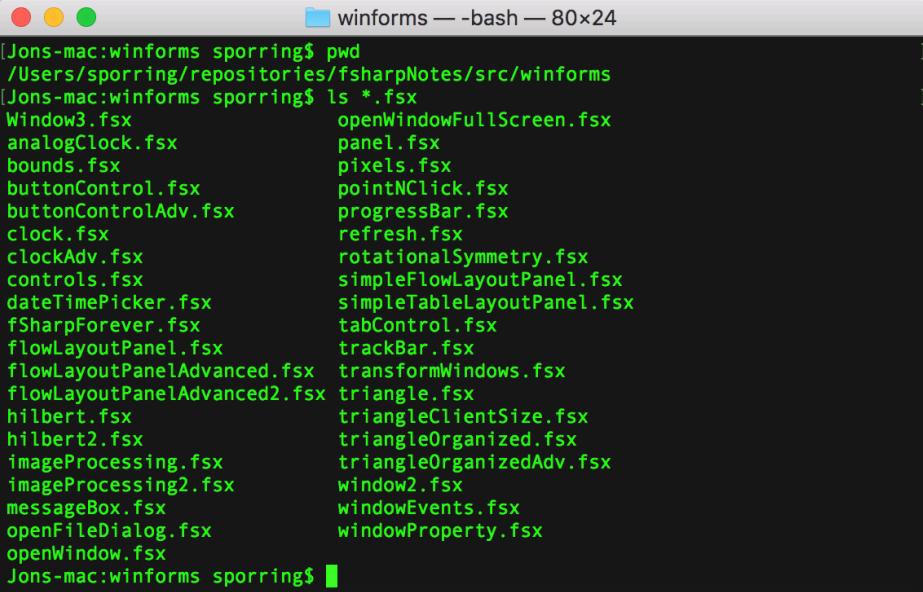


Grafiske brugergrænseflader i F#

Programmering og problemløsning

Jon Sporring

Kommandolinjen



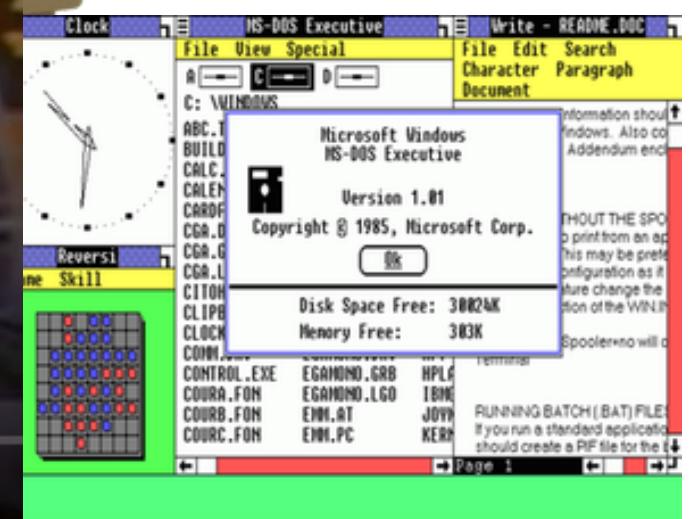
```
[Jons-mac:winforms sporring$ pwd
/Users/sporring/repositories/fsharpNotes/src/winforms
[Jons-mac:winforms sporring$ ls *.fsx
Window3.fsx          openWindowFullScreen.fsx
analogClock.fsx      panel.fsx
bounds.fsx           pixels.fsx
buttonControl.fsx    pointNClick.fsx
buttonControlAdv.fsx progressBar.fsx
clock.fsx            refresh.fsx
clockAdv.fsx         rotationalSymmetry.fsx
controls.fsx         simpleFlowLayoutPanel.fsx
dateTimePicker.fsx   simpleTableLayoutPanel.fsx
fSharpForever.fsx    tabControl.fsx
flowLayoutPanel.fsx  trackBar.fsx
flowLayoutPanelAdvanced.fsx transformWindows.fsx
flowLayoutPanelAdvanced2.fsx triangle.fsx
hilbert.fsx          triangleClientSize.fsx
hilbert2.fsx         triangleOrganized.fsx
imageProcessing.fsx  triangleOrganizedAdv.fsx
imageProcessing2.fsx window2.fsx
messageBox.fsx        windowEvents.fsx
openFileDialog.fsx   windowProperty.fsx
openWindow.fsx
[Jons-mac:winforms sporring$ ]
```



HP Touch computer, 1983, youtube.com

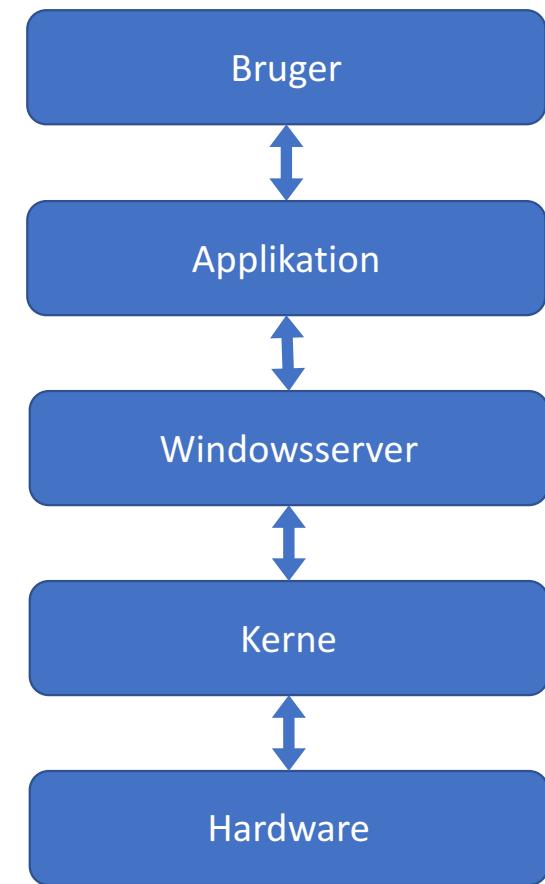
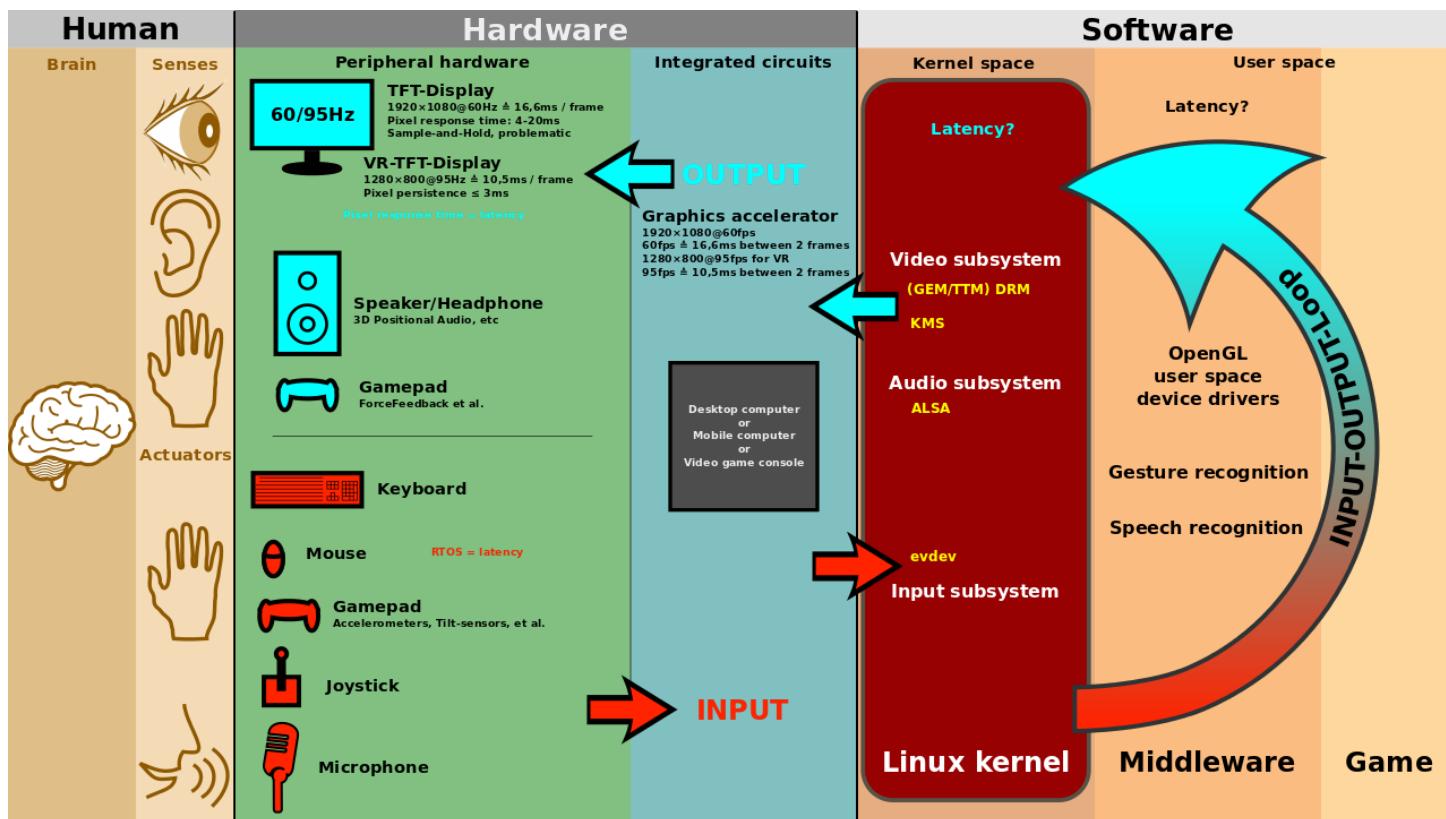


Douglas Engelbart's mouse, 1963,
wikipedia



Windows 1.0, 1985, wikipedia

Interaktion mellem bruger, software og hardware

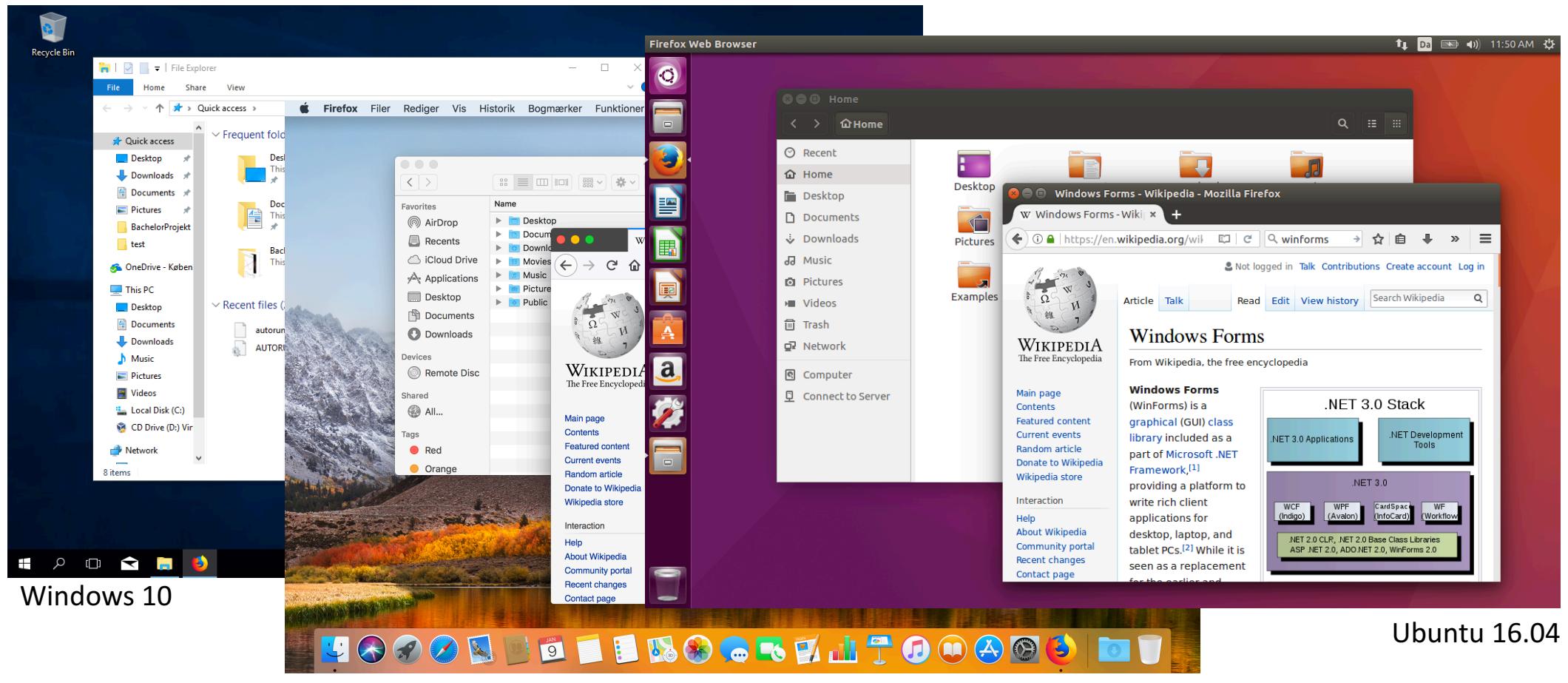


GNU Free Documentation License, author: Shmuel Csaba Otto Traian, en.wikipedia.com, retrieved: 2018/1/10.

Design guidelines

- Foretræk simple interfaces
- Gå efter konsistens og med elementer, brugeren kender
- Vælg en opsætning, som fremhæver de vigtigste elementer
- Brug farve og teksturer strategisk
- Vær konservativ mht. font, størrelse og form
- Gør brugeren opmærksom på, hvad der sker
- Tænk på default værdier

Grafiske brugergrænseflader



Windows 10

Ubuntu 16.04

MacOs 10.13

Windows and libraries for Mono

- **WinForms 2.0** (.Net, MS Windows, DirectX vs. GDI+, Windows Presentation Foundation)
- Gtk# (Gtk+, Linux/Gnome)
- Cocoa (MacOS)

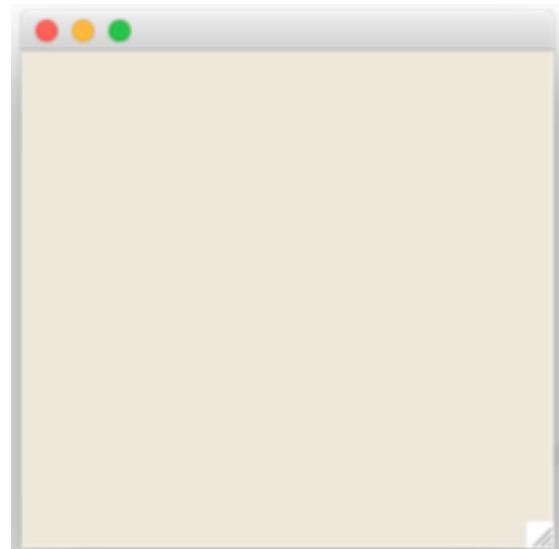
My first window

Listing 23.1 winforms/openWindow.fsx:

Create the window and turn over control to the operating system. See Figure 23.2.

```
1 // Create a window
2 let win = new System.Windows.Forms.Form ()
3 // Start the event-loop.
4 System.Windows.Forms.Application.Run win
```

```
1 $ fsharpc --nologo openWindow.fsx && mono32 openWindow.exe
```



Listing 23.2 winforms/windowProperty.fsx:

Create the window and changing its properties. See Figure 23.3.

```
1 // Prepare window form
2 let win = new System.Windows.Forms.Form ()
3
4 // Set some properties
5 win.BackColor <- System.Drawing.Color.White
6 win.Size <- System.Drawing.Size (600, 200)
7 win.Text <- sprintf "Color '%A' and Size '%A'" win.BackColor win.Size
8
9 // Start the event-loop.
10 System.Windows.Forms.Application.Run win
```

