

Personalization: Adaptive Approaches

Sylvie Foss

A decorative graphic consisting of several horizontal lines of varying lengths and colors (teal, light blue, white) extending from the right side of the slide towards the center.

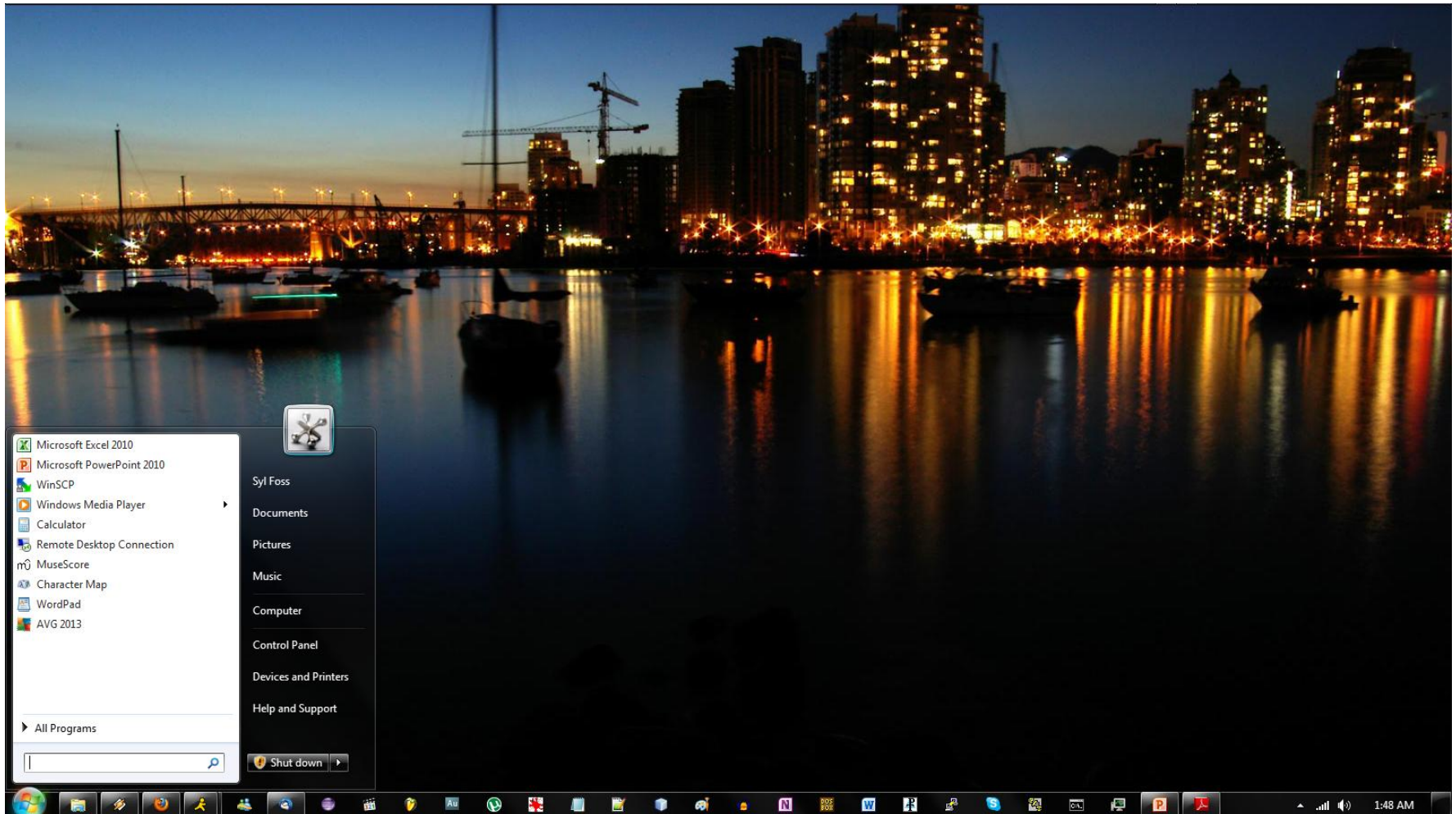
Source: <http://www.guidebookgallery.org/screenshots/winxppro>

The magical world of Windows XP



Source: my computer

It must have been a good idea



[Source: my computer](#)

It's actually really useful

Personalization.pptx - Microsoft PowerPoint

File Home Insert Design Transitions Animations Slide Show Review View

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Source: Screenshot of Power Tab Librarian from my computer

More programs should have it

Power Tab Librarian

File Edit View Tools Help

Search:

All - Title - Artist - Album - Composer - Lyricist - Arranger - Transcriber

Songs

Lessons

Artists

All artists (19)

- Antonio Vivaldi (2)
- April Wine (2)
- Black Label Society (1)
- Bob Seger (1)
- Bob Seger And The Silver Bullet Band (1)
- Boston (6)
- Dio (2)
- Iron Maiden (1)

Albums

All albums (31)

- (4)
- And Justice For All (1)
- Blackout (1)
- Blizzard Of Ozz (1)
- Boston (5)
- Cowboys From Hell (1)
- Crazy World (3)
- Dance Of Death (1)

#	Title	Artist	Album	Year	Tradi...	Composer	Lyricist	Arranger	Transcriber	Copyright
1	Concerto In F Moll For Violin, Strings And...	Antonio Vivaldi		2011	No	Antonio Vivaldi			Argonaut	alexheavy@mail.ru
2	Concerto In F Moll For Violin, Strings And...	Antonio Vivaldi		2011	No	Antonio Vivaldi			Argonaut	alexheavy@mail.ru
3	You Could Have Been A Lady	April Wine	On Record	1972	No	Errol Brown and Anthony ...	Errol Brown and Anthony ...		Prairie Boy	
4	Roller	April Wine	First Glance	1978	No	Myles Goodwyn	Myles Goodwyn		S. Flavel	
5	Stillborn	Black Label Society	The Blessed Hellride	2003	No	Zakk Wylde	Zakk Wylde and Ozzy Osb...	Zakk Wylde	Gabriel Ortiz	2003
6	Rock and Roll Never Forgets	Bob Seger	Night Moves	1976	No	Bob Seger	Bob Seger		Andy Aledort of Guitar W...	1976 Gear Publishing
7	Mainstreet	Bob Seger And The Silver Bulle...		2004	No	Bob Seger	Bob Seger		Doetj2	
8	Peace Of Mind	Boston	Boston	1976	No	Tom Scholz	Tom Scholz		Cary Robbins :: Cary Rob...	1976 Capitol Studios
9	Smokin'	Boston	Boston	1976	No	Tom Scholz & Brad Delp	Tom Scholz & Brad Delp		zwilling99 :: Anoraknophile	1976 Pure Music
10	More Than a Feeling	Boston	Boston	1976	No	Tom Scholz	Tom Scholz	Tom Scholz	cbiss66@aol.com	
11	Don't Look Back	Boston	Don't Look Back	1978	No	Tom Scholz	Tom Scholz	Boston	cbiss66@aol.com (slaya)	
12	Foreplay/Long Time	Boston	Boston	1976	No	Tom Scholz	Tom Scholz		SgCoil	2005
13	Rock & Roll Band	Boston	Boston	1976	No	Tom Scholz	Tom Scholz	Boston	cbiss66@speednet.com (...)	
14	Holy Diver	Dio	Holy Diver	1983	No	Ronnie James Dio	Ronnie James Dio		guitargod175	2003
15	Rainbow In The Dark	Dio	Holy Diver	1983	No	Dio	Dio		Westcoat	
16	Wildest Dream	Iron Maiden	Dance Of Death	2003	No	A.Smith	S. Harris		Luca Abete (lucaabete@b...	
17	Midnight	Joe Satriani	Surfing With The Alien	1988	No	Joe Satriani			/V/M	1987 Strange Beauti...
18	Master Of Puppets	Metallica	Master Of Puppets	1986	No	James Hetfield, Lars Ulrich...			Jon Symons, Bakerman	Jon/Bakerman 2004
19	And Justice For All	Metallica	And Justice For All	1988	No	Hetfield,Hammett and Ulrich	Hetfield		cbiss66@aol.com :: cbiss...	Creeping Death Musi...
20	Turn The Page	Metallica	Garage Inc.	1998	No	Bob Segar	Bob Segar		Jeff Jacobson, Steve Gor...	
21	BATTERY	Metallica	Master of Puppets	1986	No	James Hetfield and Lars Ul...	James Hetfield and Lars Ul...		Vengeance_WTF@wwwe...	1986 Creeping Death...
22	2x Again	Michael Angelo	No Boundaries	1995	No	Michael Angelo			Daniel W. Melbourne	
23	Crazy Train	Ozzy Osbourne	Blizzard Of Ozz	1981	No	Ozzy Osbourne, Randy R...	Ozzy Osbourne, Randy R...		ian s.	
24	Over The Mountain	Ozzy Osbourne	Diary Of A Madman	1982	No	Ozzy Osbourne, Randy R...	Ozzy Osbourne, Randy R...	James Gay	James Gay	2004 James Steven C...
25	Cemetery Gates	Pantera	Cowboys From Hell	1990	No	Pantera	Pantera	Pantera	cbiss66@aol.com	
26	Way Cool Jr.	Ratt		1988	No				dch67	
27	Lay It Down	Ratt	Invasion Of Your Privacy	1986	No	Robbin Lantz Crosby, Jua...	Robbin Lantz Crosby, Jua...		Sean Mugford	
28	Round And Round	Ratt	Out Of The Cellar	1984	No	Ratt	Ratt	Ratt	B. Johnson	

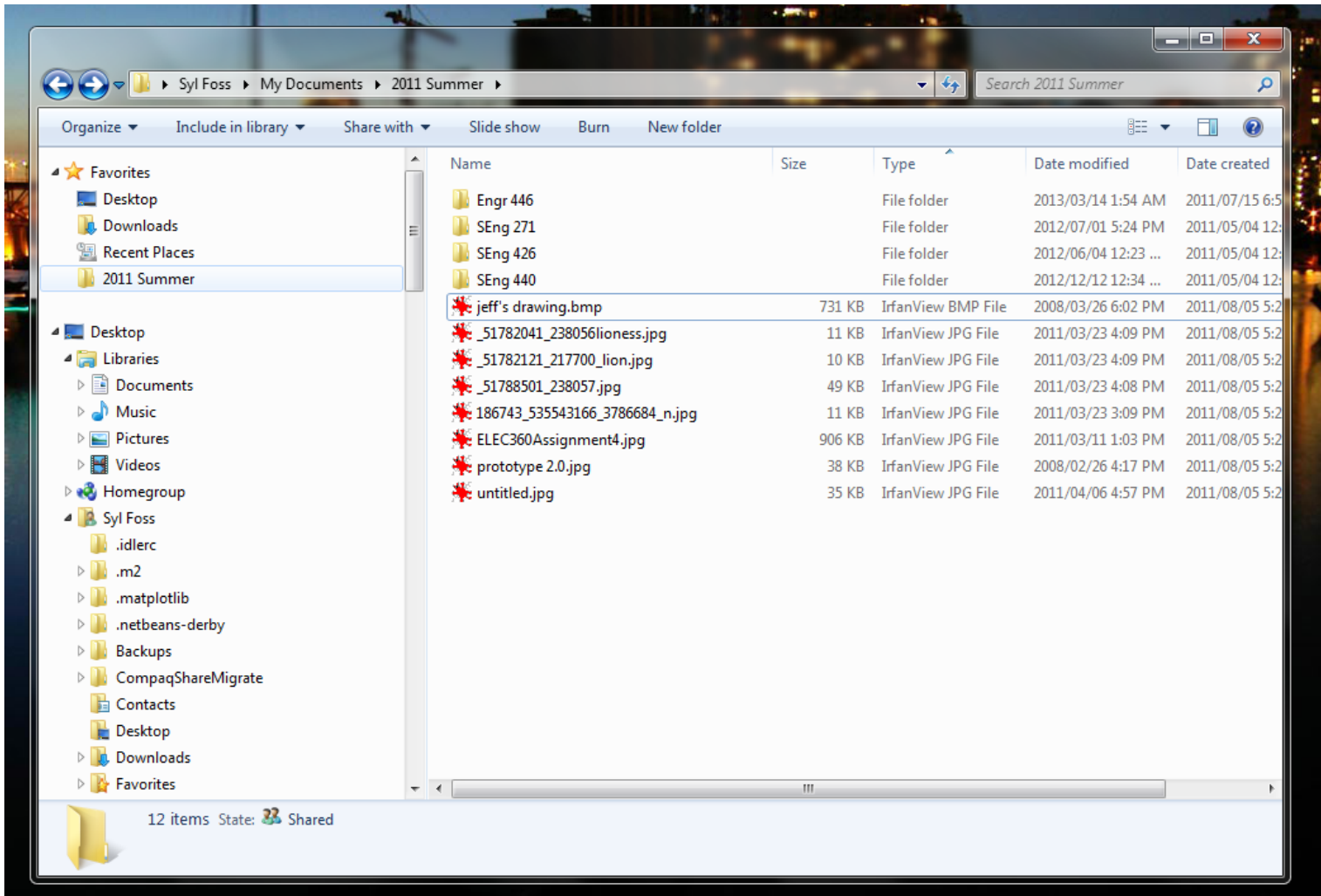
File name: antonio_vivaldi_four_seasons_winter_1st_movement.ptb

In folder: C:\Users\Syl Foss\Documents\Tablature

Size: 69,7 KB

Source: my computer

Unlike this useless feature



Who needs adaptive interfaces?

- People have different abilities
 - Computer expertise
 - Drawing skill
 - Folks with fat fingers
- Background knowledge
 - Newcomers vs. experts
- Disabilities and accessibility issues

Source: FL Studio screenshot from my computer

Sometimes, help would be nice

The screenshot displays the FL Studio interface with several key components visible:

- Top Bar:** Shows the title "FL STUDIO Trigger Happy", a digital display at "0:00:00", and various status indicators like "30" and "639".
- Browser:** A sidebar on the left lists various sample categories such as "Drum Kit 04", "Guitar", "Legacy", "Loops", "Orchestral", "Strings", "Tenor Sax", "Trombone", "FLS Strings", "FLS Tenor Sax", "FLS Trombone", "Piano", "Piano 1", "Piano 2", "Shapes", and "Misc".
- Channel Rack:** The main workspace shows several channels including "Pacman pill 2", "Moogish", "Nebula", "Default", "Acoustic Guita...", "Sytrus - Bassline", "Samples - Dru...", "Sytrus - Pads", and "DirectWave (Acoustic Guitar 01 #4)".
- DirectWave Plugin:** A large window is open for the "DIRECT WAVE" plugin, displaying a table of samples and a piano roll.

Zone	Zone Name	Size	Rate	Mute	Root	Semi	Fine	K-Tik	Ticks	Sy	Sl	L-Key	H-Key	L-Vel
000	ACDUST ICG 1_A#2	396999	044100	000	034	+00	+00	+100	084	034	000			
001	ACDUST ICG 1_A#3	132300	044100	000	046	+00	+00	+100	032	046	046	000		
002	ACDUST ICG 1_A#4	110200	044100	000	058	+00	+00	+100	016	058	058	000		
003	ACDUST ICG 1_A2	374800	044100	000	033	+00	+00	+100	064	033	033	000		
004	ACDUST ICG 1_A3	158400	044100	000	045	+00	+00	+100	032	045	045	000		
005	ACDUST ICG 1_A4	110200	044100	000	057	+00	+00	+100	016	057	057	000		
006	ACDUST ICG 1_B2	374800	044100	000	035	+00	+00	+100	064	035	035	000		
007	ACDUST ICG 1_B3	176400	044100	000	047	+00	+00	+100	032	047	047	000		
- Channel Settings:** A "Channel settings - Acoustic Guitar 01 #4" window is open, showing a piano keyboard and various parameters like "PLUGIN", "MISC", and "FUNC".
- Plugin Windows:** Other windows include "Fruity Limiter (Knob / remote control)" and "Lite Ride".
- Keyboard Overlay:** A semi-transparent keyboard is overlaid on the bottom right, with some keys highlighted in green.

Let's learn how to use FL Studio

- I've just bought a new music creation program
- Can you help me get started?
 - I've heard good things about "Sytrus"

Who should adapt?

- Either the user learns
 - Tutorials
 - Inline help
 - Trial-and-error
- Or the system learns
 - Adjust UI to match user patterns
 - Help user as needed

Make the system adapt!

- Who wants to learn new software anyhow?
 - Took me ages to learn FL Studio, and it was trial-and-error
- But it can be pretty annoying
 - Visual popout from today's paper
 - Moving instead of copying
 - Even research with my team
- So there are trade-offs

How to not be annoying

- People like to have a choice
 - Copying instead of moving
 - Toggle for my team's UI
- Stability
- Satisfaction over speed
 - Speed benefits only in unrealistic tasks

More on stability

- Gajos et al. (2008) thought in terms of predictability and accuracy
 - “Predictable if it follows a strategy users can easily model in their heads”
 - Accuracy is how long UI components stay in the adaptive area
- Simple and functional vs. more accurate but confusing learned approach
 - Users actually liked accuracy over predictability!

Incremental interfaces

- Add functionality as you learn
- What and when?
 - *What* functionality to add
 - *When* to add it

InterBook

- Web-based interface by Brusilovsky et al. (1996)
- System for reading and writing textbooks
- Interface is way too complicated
 - Separate windows for navigation, support, etc.
 - Some features go ignored

A pretty (complicated) UI

The screenshot shows two Netscape browser windows. The left window, titled "Netscape: InterBook User and Author Manual", displays a navigation menu with links like "4. Using InterBook" and "4.2 Textbook window", a "Back ..." link, and a section titled "4.2.1 Text window" with a detailed paragraph of text. The right window, titled "Netscape: Glossary and Concepts", shows a "Select:" dropdown menu with an "all" selection, a vertical list of letters (A-Z), and a "Glossary: T" section with a list of items including "terminal section", "Text window", "textbook", "Textbook window", and "Tool box". Below this is a "terminal section" entry with a paragraph of text and a list of related pages.

Netscape: InterBook User and Author Manual

[InterBook User and Author Manual](#)

- 4. Using InterBook
 - 4.2 Textbook window
 - 4.2.1 Text window
 - 4.2.2 Concept bar
 - 4.2.3 Navigation center
 - 4.2.4 Tool box

[Back ...](#)

4.2.1 Text window

The lower left subwindow of the Textbook window is the Text window. This window shows a particular section of the textbook which is called current section. It can be a terminal section or a high-level section (the most high-level section is the interbook itself). For a terminal section the Text window shows the title of the section and the section itself. For a high-level section the Text window shows the title, the section preface (if existing) and the full table of content for this section (i.e. list of hierarchically structured titles of its subsections down to terminal level). All names of the subsections are clickable links.

[Continue ...](#)

Netscape: Glossary and Concepts

Select:

A B C
D E F
G H I
J K L
M N O
P Q R
S T U
V W X
Y Z

Glossary: T

- terminal section
- Text window
- textbook
- Textbook window
- Tool box

[terminal section](#)

This concept is introduced on these pages:

- 2.1 A classic textbook

Knowledge about this concept is required for:

- 4.2.1 Text window
- 4.2.2 Concept bar

Document: Done. <http://128.2.250.46/inter/get-glossar?A%2Bpb%2B36>

User-as-student metaphor

- Adaptive electronic textbooks act as tutors
 - Keep track of student knowledge
 - Suggest more as they fill the prerequisites
- Think of the user as a student learning how to use the interface
 - Now we can solve our problem with adaptive tutoring
 - UI features are concepts to learn

Adapting for accessibility

- Accessible touch screens
 - Users with reduced motor control
 - Eyesight considerations
- How to adapt for these people?
 - Depends on environment
 - User-specific capabilities
- Certain needs at certain times

The Shared User Model

- PhD work of Kyle Montague (2012)
- Log user and environment data
 - Capture user interactions
 - Sensors to observe light, noise, etc.
- Adjust the UI accordingly
 - Adjust required touch duration, thresholds for movement, target sizes, brightness, etc.

MyUI project

- García et al. (2012) also developed a system for special needs adaptation
 - Gathers data on usage
 - Combines modular interaction components to form suitable UI
- “Adaptation engine” determines what to do
 - For vision problems, make the font bigger
 - For very poor vision, read the text aloud

Looking toward the future

- Further evaluation in realistic scenarios
 - Existing systems sound promising, long-term
- Much work still required
 - Still difficult to find balance between helpful and irritating
 - Machine learning
- Adapt to adaptation; it is worth it
 - Enormous design overhead

Discussion

- What would happen if your house adapted to your needs?
 - Ruin aesthetics if the front door moves closer to the car?
 - Could you keep track of your belongings?

Discussion

- What are some adaptive interfaces you've used?
 - Which UIs do you wish *were* adaptive?

Discussion

- What obstacles are preventing the adaptation of adaptation?
 - Which obstacle is the biggest?

Discussion

- Is there value in subsets of interfaces?
 - eg: Different UI for students, children, elderly, etc. and each is also adaptive

References

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7. Montague, K (2012). Interactions speak louder than words: shared user models and adaptive interfaces. In *UIST Adjunct Proceedings '12*, pp. 39-42.