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Experience Intelligent Design
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Information Visualization

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User-Interface Design for Work, Home, Play, and On the Way

Presenter

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Workshop Handout Notes

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Instructor's Biography: Aaron Marcus

Mr. Marcus received a BA in Physics from Princeton University (1965) and a BFA and MFA in Graphic Design from Yale University Art School (1968). He is an internationally recognized authority on the design of user interfaces, interactive multimedia, and printing/publishing documents. Mr. Marcus has given tutorials at SIGCHI, UPA, HCII, and SIGGRAPH conferences, and at seminars for businesses and academic institutions around the world. He co-authored *Human Factors and Typography for More Readable Programs* (1990), *The Cross-GUI Handbook* (1994), and *Mobile TV: Content and Context* (2009), and authored *Graphic Design for Electronic Documents and User Interfaces* (1992). Mr. Marcus was the world's first professional graphic designer to be involved full-time in computer graphics (1967), to program a desktop publishing system (for the AT&T Picturephone, 1969-71), to design virtual realities (1971-73), and to establish an independent computer-based graphic design firm (1982). In 1992, he received the National Computer Graphics Association Industry Achievement Award. In 2000, ICOGRADA named him one of the Master Graphic Designers of the 20th Century. In 2007, AIGA's Center for Cross-Cultural Design named him a Fellow. In 2009, he was elected to the CHI Academy and won the BFMA Award for lifetime contribution to forms system professionals worldwide. In 2009, he was awarded the UPA 2009 award for service.

Mr. Marcus is President and Principal Designer/Analyst of Aaron Marcus and Associates, Inc., a user-interface and information-visualization development firm with more than 25 years of experience in helping people make smarter decisions faster at work, at home, at play, and on the way. AM+A, has developed user-centered, task-oriented solutions for complex computer-based design and communication challenges for clients on all major platforms (client-server networks, the Web, mobile devices, information appliances, and vehicles), for most vertical markets, and for most user communities within companies and among their customers. AM+A has served corporate, government, education, and consumer-oriented clients to meet their needs for usable products and services with proven improvements in readability, comprehension, and appeal. Working with either client R+D or marketing groups, AM+A uses its well-established methodology to help them plan, research, analyze, design, implement, evaluate, train, and document metaphors, mental models, navigation, interaction and appearance. AM+A's clients include Anoto, BankInter, BMW, DaimlerChrysler, eBay, Filemaker, The Getty Trust, HP, McKesson, Microsoft, Motorola, NCR, Nokia, Oracle, Peoplesoft, Qwest, Sabre, Samsung, Tiscali, US Federal Reserve Bank, Visa, Wells Fargo Bank, and Xerox. AM+A helped design the first user interfaces for America Online, Sabre's Travelocity, and Microsoft's ThreeDegrees.com.

Agenda for the Tutorial

Time	Topic
10:00	Tutorial begins
10:00-10:15	Lecture 0: Introduction to AM+A
10:15-12:00	Lecture 1: Cross-Cultural User Experience Design (Including short break 11:15-11:30 if necessary)
12:00-13:00	Lunch
13:00-13:45	Lecture 2: Asian Mobile UIs, Technology, Culture
13:45-14:15	Lecture 3: China UI Case Study: Wukong Project
14:15-15:15	Lecture 4: Korean Mobile Phone Trends and Culture
15:15-15:30	Lecture 5: Making Media Metadata Management Fun
15:30-16:00	Break
16:00-16:15	Lecture 6: Web 2.0 and Culture
16:15-16:30	Lecture 7: Social Network Services and Culture
16:30-16:45	Lecture 8: m-YouTube plus Social Networks
16:45-17:00	Lecture 9: User-Centered Design Case Study: SJPD
17:00	Tutorial ends

Detailed Description and Allocation of Time

Lecture 0: Introduction to instructor and tutorial (15 minutes)

Introduces the presenter, schedule, procedures, and objectives.

Lecture 1: Cross-Cultural User-Experience Design (105 minutes)

User-experience design is at the top of concerns for Internet-based product/service user-interface development, especially for global deployment. How do culture differences affect that experience? How do the similarities and differences affect emotions, trust, persuasion, intelligence, and even cognition? These questions cut across all design disciplines, all platforms (e.g., Web, client-server PCs, mobile, appliances), applications (e.g., productivity, entertainment, commerce), user communities (e.g., professional, consumer), and markets (e.g., office, home, industrial), and all content themes (e.g., video/music media, information bases, games, etc.). This lecture surveys the issues of cross-cultural communication and interaction, introduces culture dimensions, and discusses issues, with examples, that are challenging analysts and designers worldwide. He includes developments in mobile devices and social networking Websites. All developers are seeking to embrace this additional set of concerns that impact usability, usefulness, and appeal.

Lecture 2: Asia Technology Trends and Culture Issues in Mobile UI Design (45 minutes)

This lecture focuses on recent developments of mobile products and services in China, Japan, Korea, and Taiwan. Some current trends are illustrated. Examples show the influence of different cultures on mobile products and services. The differences among Asian countries as well as differences from USA products and services are highlighted.

Lecture 3: China UI Design Case Study: Wukong Project (30 minutes)

This lecture summarizes the development of a PDA oriented to Chinese culture, especially in relation to the principle of Xuang-shi, or relationship building. These differences lead to strikingly different approaches to metaphors, mental models, navigation, interaction, and appearance.

Lecture 4: Korean Mobile Phone Trends and Culture (30 minutes)

Illustrated lecture will summarize selected trends in mobile phone products and cite culture differences in example products/services from South Korea.

Lecture 5: Making Media Metadata Management Fun in Consumer Electronics (15 minutes)

This lecture introduces the issues of consumer electronics UI design issues, especially for media players with media metadata management functions for phones, music players, video players, PDAs, desktop synching, and vehicle systems. We discuss several possible improvements, and show information visualization techniques that can improve the user's experienced, making it more "fun" to find, sort, play, and pay.

Lecture 6: Web 2.0 and Culture (15 minutes)

Illustrated lecture will summarize selected trends in Web 2.0 development and compare them to Web 1.0 products/services. The lecture will cite specific culture differences in Web 2.0 products/services from Japan, Korea, Taiwan, and the US.

Lecture 7: Social Network Services and Culture (15 minutes)

Illustrated lecture will summarize trends in social network services (SNSs) and cite examples of culture differences in SNSs from Japan, Korea, and the US.

Lecture 8: m-YouTube with Social Networking (15 minutes)

This lecture describes a prototype conceptual project to design a version of YouTube for mobile devices that takes advantage of social networking recommendations to guide users in their choice of video selection.

Lecture 9: User-Centered Design Case Study: San Jose Police Department Mobile Telecommunications System (15 minutes)

This lecture summarizes a usability study of a mobile emergency response and communication system. The study indicated many significant errors in a system marred by usability problems that could have been avoided with better user-centered design. User-centered design was a key objective of an earlier AM+A project seeking to summarize much human factors advice about designing for the driver experience.

Learning Objectives and Abstract

Learning Objectives

Participants will become familiar with the current state of culture models and mobile product/service development, including applications for phones/PDAs, vehicles, and music/consumer electronics; key technology, social, business, cultural, and UI issues, and learn specific techniques appropriate for designing and analyzing mobile products and services. Concepts covered to assist professionals to design more effectively are:

- *User Analysis*: Specification of user demographics and user-environment, user modeling, task analysis, and accounting for business objectives
- *Metaphors*: Easy recognized and remembered, fundamental concepts conveyed through words, signs, and images
- *Mental models*: Organization of data, functions, tasks, roles, and people
- *Navigation of mental model*: Efficient movement within the mental model via windows, menus, dialogue boxes, or control panels
- *Interaction*: Effective input and output-feedback sequencing
- *Appearance*: Quality visual, acoustic, and touch characteristics
- *Information Visualization*: Tables, charts, maps, and diagrams
- *Basic visual design*: Scale, proportion, rhythm, symmetry, and balance.

Abstract

User interfaces for desktop, Web, mobile, and vehicle platforms reach across culturally diverse user communities, sometimes within a single country/language group, and certainly across the globe. If user interfaces are to be usable, useful, and appealing to such a wide range of users, user-interface /user-experience developers must account for cultural aspects in globalizing/localizing products and services. In this tutorial, participants will learn practical principles and techniques that are immediately useful in terms of both analysis and design tasks. User interfaces (UIs) combining computation with communication functions, e.g., phone, video, the Web, and music are enabling mobile products/services to penetrate environments for work, home, play, and on the way. Consequently, developers must learn techniques to make mobile products/services easier to learn and use, more usable, useful, and appealing to an every wider, more diverse set of users. This tutorial summarizes key principles, techniques, and surveys issues and current products. Special attention is given to information design and visualization. Analyzing and designing mobile UIs from an information, visually-oriented design perspective can make product/services easier to produce, sell, learn, use, and maintain. Users will find it easier to find, sort, play, and pay.

Tutorial Slides, Publications, and Bibliographies

Presentation slides appear on the following pages, after which appear publication resources with bibliographies.