References

Conferences:

* CHI: ACM Special Interest Group on Computer and Human Interaction (annual)
* SIGGRAPH: ACM SIG on Computer Graphics and Interactive Techniques (annual)
* UIST: ACM Symposium on User Interface Software and Technology (annual)
* CSCW: ACM Conference on Computer-Supported Cooperative Work (biennial)

These are the large US conferences. CHI gets about 2500 attendants, quality of papers in proceedings is spotty. SIGGRAPH gets about 25000 attendants, and is the convergence of CS and the entertainment industry. Papers are superb but very technical. UIST is by invitation, papers are excellent and very relevant to HCI. CSCW is specialized, with strong industry support. Human factors, hypertext, VR, agent theory, interactivity design, and European interests also have specialized conferences.

Journals:

* SIGCHI Bulletin (quarterly). For professionals in the HCI field
* Interactions (quarterly). Slick, excellent articles, for professionals.
* Presence (quarterly). Premier technical journal for virtual environments.

Internet:

http://www.cis.ohio-state.edu/~perlman/resources.html
six articles from ACM Interactions Magazine HCI Resources by Perlman
http://www.cs.bgsu.edu/HCI/
HCI resources collected by Instone
http://info.sigchi.acm.org/sigchi/
CHI homepage
http://www.Sun.COM/sun-on-net/www.sun.com/uidesign/
story of the SUN homepage design
http://www.yahoo.com/Science/Computer_Science/Human_Computer_Interaction/
resource list
http://www.cs.cmu.edu/afs/cs/project/amulet/www/amulet-home.html#overview
access to a research prototype UI toolkit
http://www.cis.ohio-state.edu/~perlman/hcibib.html
big bibliography
http://www.ida.liu.se/labs/aslab/groups/um/hci/
more references
http://www.cs.cmu.edu/afs/cs.cmu.edu/user/bam/www/toolnames.html
list of UI toolkits

Definitions

Definitions of HCI

* Encyclopedia of Computer Science and Engineering: no entry for HCI

* HCI is the study of the interaction between humans and computers. [Booth, 1989]
  - Interactional hardware and software
  - Matching models (understanding, meeting needs, usability)
  - Design and development of interactional systems
  - Organizational impact

* HCI is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them. [ACM-HCI, 1993]

machines:	computer workstations, aircraft cockpits, microwave ovens
humans:	groups, organizations, human work
interaction:	programming, TV remote control, VR games

* HCI is the main gating function to the successful use of technology. [Strong, 1995]

* The tension between the human use of computation and the computational use of humans. [Bricken, 1991]

Subject matter of HCI

Cross-disciplinary:

Computer Science	application design, interface engineering
Psychology	cognitive processes, user behavior
Sociology&Anthro	technology, work, organization
Industrial Design	product interactivity

ACM-HCI curriculum:

- nature of HCI
  - models and meta-models
- use and context of computers
  - social organization and work
  - application areas
  - human-machine fit and adaptation
- human characteristics
  - human information processing
  - language, communication and interaction
  - ergonomics
- computer system and interface architecture
  - input devices

- recognition
- output devices
- rendering and computer graphics
- dialogue and system architecture
- dialogue techniques
- dialogue genre

development process

- design approaches
- implementation techniques
- evaluation techniques
- example systems and case studies

Realities of HCI

Origins:

computer graphics	CRT and pen devices
man-machine symbiosis	WIMP
operating systems	i/o interface, response time
human factors	war equipment, sensory-motor
ergonomics	work efficiency, sensory-motor
industrial engineering	productivity, fatigue
cognitive psychology	human information processing
computer systems	sales and usability

Technical concerns:

- joint performance human/machine
- structure of communication
- human capabilities, learning
- programming
- engineering interfaces
- specification and design

Major trends:

ubiquitous communication	(the net)
high functionality systems	(configurable computing)
mass computer graphics	(killer video games)

- mixed and multi media
- high bandwidth
- large, thin displays
- embedded computation
- group interfaces
- user tailorability
- information utilities
- virtual environments
- internet, internet, internet

HCI career paths:

industry research
research practice and implementation
systems and requirements analysis
ergonomics and human factors engineering
software programming converts
personnel and support converts
graphical design

What HCI professionals say they need:

most:	user interface technology
	interactive systems design
less:	nature of HCI
	research methods
	programming the interface
least:	user modeling
	application areas

Most research interest:

UI design
CSCW
multimedia
software engineering
UIMS toolkits
information presentation/visualization
cognitive modeling
UI development
theories of HCI

Changing focus:

faster cheaper systems
portability
new display and packaging
network communication
multimodal i/o

Theoretical issues:

utility of IPS
context and situation
human variability
human artifacts
social vs individual impact/design
role of theory in design

Freedom and privacy:

property vs freedom
constitution in cyberspace
falsifying electronic evidence
liability and sysadmin
cryptography
crime and law in cyberspace
privacy and freedom of speech
e-money
mass interactive communication
censorship

Selected Issues

* Social and psychological impact of computers
* Impact of the Web, networked users
* Cultural differences and human variability
* Speed of evolution of computers and design/learning strategies
* Interface within symbolic systems, programmer interfaces vs user interfaces
* Do you need to know programming or systems architecture in order to design interfaces?
* How much real-time is needed for interactivity?
* Formal or informal approach: clean/scruffy, artist/engineer
* Closed HCI society vs superstars vs poor academic acceptance
* Empiricism: task analysis, protocol analysis, the role of research in design
* User flexibility/choice vs designed constraints
* Program or interact or broadcast: where does the user begin and the system end
* Is the car a user interface for a fuel-injection computer?
* Is game and film design the dominant use of HCI?