Sixth International Symposium on Wearable Computers
October 7–10, 2002   Seattle

ISWC 2002 Program

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Welcome to ISWC 2002!

Tutorials, technical sessions, posters, fashion show, exhibits, case studies and refreshment breaks will be held in the Husky Student Union Building (HUB). The Tuesday evening reception and demonstration session will be held in the Human Interface Technology Lab (HIT Lab) in Fluke Hall on campus. Lunches are on your own.

ISWC 2002 Committee

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Demonstration Logistics: Dan Belcher, University of Washington

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    Jun Rekimoto, Sony
    Dan Siewiorek, Carnegie Mellon University
    Mark Smith, Hewlett Packard Laboratories
    Bruce Thomas, University of South Australia
    Andy Ward, Ubiquitous Systems

ISWC 2002 Exhibits

Location: **Room 106B, HUB**

Exhibit hours: **Tuesday, October 8**
9:00 a.m.–6:00 p.m.

Wednesday, October 9
9:00 a.m.–5:00 p.m.

Vendors: **Charmed Technology**
www.charmed.com

Foster-Miller
www.foster-miller.com

Wearable Computing Lab
Swiss Federal Inst. of Technology (ETH)
and **Georgia Tech**
www.colab.ethz.ch
wearables.cc.gatech.edu

Microvision, Inc.
www.mvis.com

Symbol Technologies
www.symbol.com

Refreshment Breaks

Mid-morning and afternoon refreshment breaks will be served in the exhibit area.
The exhibit area will also be open during the lunch break on Tuesday and Wednesday.

Email Access

A bank of computers will be available in the exhibit area for symposium participants to check email. These computers will be accessible during the hours the exhibit hall is open. There will also be wireless access available throughout the conference space.

ISWC 2002 Tutorials

Monday, October 7, 2002

8:00am   **Registration Desk Open / Tutorial Check-in**
Room 310, HUB

9:00am   **Morning Tutorial Sessions**

Room 209A, HUB
Wearable Computing User Interface Development
L. Davis, D. Newell

Room 209B, HUB
An Introduction to Wearable Computing
T. Starner

12:30pm **Lunch on your own**

2:00pm   **Afternoon Tutorial Sessions**

Room 209B, HUB
Low Power Communication/Computing with Today's Hardware
J. Bakker

Room 209A, HUB
Wearable Computers for Persons with Disabilities
M. Gandy

8:00am   Registration Desk Open

Continental Breakfast
Auditorium Foyer, HUB

9:00am   ISWC Exhibits Open
106B, HUB

9:00am   Opening and Keynote
Auditorium, HUB

Welcome and Opening Remarks
Mark Billinghurst, Symposium Chair, ISWC 2002

Retinal Displays
T. A. Furness

10:00am   Refreshment Break and Exhibits
106B, HUB

10:30am   Applications
Auditorium, HUB

Personalized Augmented Reality Touring of
Archaeological Sites with Wearable and Mobile
Computers
*V. Vlahakis, J. Karigiannis, M. Tsotros, N. Ioannidis,
and D. Stricker*

A Wearable Computer for Support of Astronaut
Extravehicular Activity
C. E. Carr, S. J. Schwartz, and I. Rosenberg

Wearable Interfaces for a Video Diary: Towards
Memory Retrieval, Exchange, and Transportation
T. Kawamura, Y. Kono, and M. Kidode

12:00pm   Exhibits Open
106B, HUB
Lunch on your own

1:30pm   Clothing
Auditorium, HUB

Using Piezoelectric Materials for Wearable Electronic
Textiles
J. Edmison, M. Jones, Z. Nakad, and T. Martin

Multi-Sensor Context Aware Clothing
K. Van Laerhoven, A. Schmidt, and H.-W. Gellersen

Minimal Social Weight User Interactions for
Wearable Computers in Business Suits
A. Toney, B. Mulley, B. H. Thomas, and W. Piekarski

The Comfort Assessment of Wearable Computers
*J. F. Knight, C. Baber, A. Schwirtz, and H. W.
Bristow*

3:30pm   Refreshment Break and Exhibits
HUB 106B

4:00pm   Hardware
Auditorium, HUB

SNAP&TELL: A Multi-Modal Wearable Computer
Interface for Browsing the Environment
T. Keaton, S. M. Dominguez, and A. H. Sayed

Mediated Reality Using Computer Graphics
Hardware for Computer Vision
J. Fung, F. Tang, and S. Mann

EyeTap Video-Based Featureless Projective Motion
Estimation Assisted by Gyroscopic Tracking
C. Aimone, A. Marjan, and S. Mann

5:45pm   Break and Exhibits
HUB Auditorium Foyer and 106B

6:00pm   ISWC Fashion Show - free and open to the public
Auditorium, HUB
*Komposite (www.komposite.com) is pleased to
present the International Symposium on Wearable
Computers Fashion Show. They will be presenting
the latest in wearable technologies developed in
labs around the world, featuring mobile input/
output peripherals, portable computing devices, and
integrated textiles. Watch professional models
demonstrate a range of technologies and designs,
from sexy sportswear to fresh-from-the-lab input
devices.*

6:30–   Demos/ ISWC Reception
9:30pm HIT Lab, Fluke Hall

8:00am   **Registration Desk Open**
Auditorium Foyer, HUB

8:00am   **Continental Breakfast**
Auditorium Foyer, HUB

9:00am   **ISWC Exhibits Open**
HUB 106B

9:00am   **Keynote**
Auditorium, HUB

Is There Space for Wearables?
S. J. Schwartz, J. A. Hoffman, E. Hodgson, and P. A. Ronzani

10:00am   **Refreshment Break and Exhibits**
HUB 106B

10:30am   **Location**
Auditorium, HUB

Learning Significant Locations and Predicting User Movement with GPS
D. Ashbrook and T. Starner

Visual Registration for Geographical Labeling in Wearable Computing
K. Xu, A. D. Cheok, K. W. Chia, and S. J. D. Prince

Exploring the Dynamic Measurement of Position
C. Randell and H. L. Muller

12:00pm   **Exhibits Open- 106B**
Lunch on your own

1:30pm   **Case Studies**
Auditorium, HUB

Virtual Aids to Navigation (vATON): Using Augmented Reality to Increase Safety and Security of Ship Navigation
Authors: Sonny Kirkley (Information in Place, Inc.), Chris Borland (Information in Place, Inc.)

Textile Integration of a Speech-Controlled Audio Player System
Authors: Stefan Jung (Infineon Technologies), Christl Lauterbach (Infineon Technologies), Guido Stromberg (Infineon Tehnologies AG), Werner Weber (Infineon Technologies)

Enhancing Operator Feedback during Catheter-Deployed Closures of Cardiac Septal Defects Using a Head-Worn Confluent Display of Fluoroscopic and Echocardiographic Images
Authors: David Ormerod (Microvision, Inc.)

2:30pm–   **Poster Session**
see next page for poster listing

2:30pm– **Poster Session**
4:00pm Auditorium Foyer, HUB

Afternoon refreshments; exhibits open

Efficient Image Segmentation of Walking Hazards Using IR Illumination in Wearable Low Vision Aids
C. M. Lee, K. E. Schroder, and E. J. Seibel

Development and Demonstration of Wearable Computer Based Interactive Nomadic Gallery
A. Hiyama, R. Ueoka, K. Hirota, M. Hirose, M. Sone, and T. Kawamura

Use of a See-Through Head-Worn Display of Patient Monitoring Data to Enhance Anesthesiologists' Response to Abnormal Clinical Events
D. F. Ormerod, B. Ross, and A. Naluai-Cecchini

AMON: A Wearable Medical Computer for High Risk Patients
P. Lukowicz, U. Anliker, J. Ward, G. Tröster, E. Hirt, and C. Neufelt

Defect Distribution for Wearable System Design
J. G. Dorsey and D. P. Siewiorek

Online Power Monitoring for Wearable Systems
J. G. Dorsey and D. P. Siewiorek

Bridging the Gap between Virtual and Physical Games Using Wearable Sensors
S. Antifakos and B. Schiele

Toward the Zero Attention Interface: Wearable Subliminal Cuing for Short Term Memory Support
R. W. DeVaul and A. Pentland

An Aural User Interface for Ubiquitous Computing
G. R. Borden IV

Wearable Robotics as a Behavioral Interface: The Study of the Parasitic Humanoid
T. Maeda, H. Ando, M. Sugimoto, J. Watanabe, and T. Miki

Threat Response: A Compelling Application for Wearable Computing
N. M. Rensing, E. Weststrate, P. M. Zavracky, M. Chandler, K. R. Nobel, S. Helfter, M. Kinsky, M. Gold, and B. Martin

A Pair of Braille-Based Chord Gloves
M.-C. Cho, K.-H. Park, S.-H. Hong, J. W. Jeon, S. I. Lee, H. Choi, and H.-G. Choi

Game-City: A Ubiquitous Large Area Multi-Interface Mixed Reality Game Space for Wearable Computers
A. D. Cheok, F. S. Wan, X. Yang, W. Weihua, L. M. Huang, M. Billinghurst, and H. Kato

A Context Visualization Model for Wearable Computers
A. Aaltonen

VECAS—A Virtually Enhanced Communication Assistance System for Application of Wearable Computing in Motor Racing
G. Kaefer, G. Prochart, and R. Weiss

VizWear-Active: Towards a Functionally-Distributed Architecture for Real-Time Visual Tracking and Context-Aware UI
T. Kato, T. Kurata, and K. Sakaue

A Menu Interface for Wearable Computing
G. Blaskó and S. Feiner

A Wearable Communication Modulator
S. Matsushita

4:00pm **Context**
Auditorium, HUB

Perspective Map
J. Lehikoinen and R. Suomela

Evaluating Contextual Information for Wearable Computing
H. W. Bristow, C. Baber, J. Cross, and S. Woolley

Wearable Sensing to Annotate Meeting Recordings
N. Kern, B. Schiele, H. Junker, P. Lukowicz, and G. Tröster

8:00am Registration Desk Open

Continental Breakfast
Auditorium Foyer, HUB

8:30am Keynote
Auditorium, HUB

Time and Time Again: Parallels in the Development of the Watch and the Wearable Computer
T. L. Martin

9:00am Theory
Auditorium, HUB

Using Wearable Computers to Construct Semantic Representations of Physical Spaces
F. Diaz

Programming Language Support for Adaptable Wearable Computing
P. K. McKinley, S. M. Sadjadi, E. P. Kasten, and R. Kalaskar

10:00am Refreshment Break
Auditorium Foyer, HUB

10:30am Video
Auditorium, HUB

Reconfigurable Hardware in Wearable Computing Nodes
C. Plessl, R. Enzler, H. Walder, J. Beutel, M. Platzner, and L. Thiele

Micro-Accelerometer Based Hardware Interfaces for Wearable Computer Mixed Reality Applications
A. D. Cheok, K. G. Kumar, and S. Prince

Design of a Wearable Sensor Badge for Smart Kindergarten
S. Park, I. Locher, A. Savvides, M. B. Srivastava, A. Chen, R. Muntz, and S. Yuen

12:00pm Lunch on your own

1:30pm Case Studies
Auditorium, HUB

Air-Larynx: The Wearable and Wireless Speech Production Substitute
Authors: Toshihiko Oba (Dept. of Otolaryngol. School of Medicine, Keio University)

Usability Evaluation for Wearable Computer in the Field: Lessons Learned
Author: Mika Röykkee (Nokia Research Center)

Tinmith-Endeavour: A Platform for Outdoor Augmented Reality Research
Authors: Wayne Piekarski (University of South Australia), Bruce Thomas (University of South Australia), Rudi Vernik (Defence Science Technology Organisation), Peter Evdokiou (Defence Science Technology Organisation)

2:30pm Gadget Show!
Auditorium, HUB

This session is very much ad-hoc. Bring along any kind of interesting gadget which you think other people would like to see. The gadget show has been very popular before and is always good for a laugh. You cannot miss this session.

3:30pm Closing Ceremony
Auditorium, HUB

4:00pm IEEE TC WIS Business Meeting
Auditorium, HUB