ANDREW D. WILSON

Work Address

20 Ames St., E15-383
Cambridge MA, 02139
(617) 253-0381
drew@media.mit.edu
`http://www.media.mit.edu/~drew`

Home Address
50 Hawthorne St.
Somerville MA, 02144
(617) 629-2661

Objective

To develop the future class of machines that learn and adapt to their stimuli, so that they may perceive as we do.

Education

Massachusetts Institute of Technology — Cambridge, MA
Candidate, Doctor of Philosophy in Computer Science — May 2000
Thesis Title: "Flexible Models for Gesture Recognition"

Massachusetts Institute of Technology — Cambridge, MA
Master of Science in Media Arts and Sciences — May 1995
Thesis Title: "Learning Visual Behavior for Gesture Analysis"

Cornell University — Ithaca, NY
Bachelor of Arts in Computer Science — May 1993
Concentration: Cognitive Sciences
GPA: 4.0/4.0.

New Hope-Solebury High School — New Hope, PA
Valedictorian — 1989

Governor's School of Excellence for Science, Carnegie Mellon University — Summer 1988

Experience

Massachusetts Institute of Technology — Cambridge, MA
Media Laboratory Vision and Modeling Group — August 1993 – *present*
Research Assistant
Conducted research in the fields of computational vision, human-computer interfaces, pattern recognition, machine learning and gesture recognition. Designed and built realtime computer vision systems. Developed pattern recognition techniques tailored to perceptual systems and human motion analysis. Collaborated with multiple groups on live demonstrations and exhibits. Current research interests include online learning and Bayesian networks.

Protozoa — San Francisco, CA
Intern — June 1997
Gained experience with realtime motion capture and performance animation systems.

Crystal River Engineering — Groveland, CA
Intern — Summer 1993
Designed and implemented a demo showcasing the flagship product of a startup company specializing in real time spatialized audio hardware. Demo was presented to thousands of potential customers at the premier computer graphics conference (SIGGRAPH).

IBM Federal Systems Company — Owego, NY
Intern — Summer 1992
Designed and implemented a prototype avionics software system. Gained exposure to various flight simulation technologies.

Journal Papers

"Parametric Hidden Markov Models for Gesture Recognition." Andrew D. Wilson and Aaron F. Bobick. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 21, No. 9, 1999.

"The KidsRoom: A Perceptually-Based Interactive and Immersive Story Environment." Aaron Bobick, Stephen Intille, Jim Davis, Freedom Baird, Claudio Pinhanez, Lee Campbell, Yuri Ivanov, Arjan Schutte, Andrew Wilson. Presence: Teleoperators and Virtual Environments, Vol. 8, No. 4, August 1999.

"A State-Based Approach to the Representation and Recognition of Gesture." Aaron F. Bobick and Andrew D. Wilson. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 19, No. 12, 1997.

Conference and Workshop Papers

"Realtime Online Adaptive Gesture Recognition." Andrew D. Wilson and Aaron F. Bobick. International Conference on Pattern Recognition, Barcelona, Spain, September 3-8, 2000, accepted for publication.

"Realtime Online Adaptive Gesture Recognition." Andrew D. Wilson and Aaron F. Bobick. International Workshop on Recognition, Analysis, and Tracking of Faces and Gestures in Real-Time Systems, Corfu, Greece, September 26-27, 1999.

"Sympathetic Interfaces: Using a Plush Toy to Direct Synthetic Characters." Michael P. Johnson, Andrew D. Wilson, Chistopher Kline, Bruce Blumberg and Aaron Bobick. SIGCHI 1999.

"Nonlinear PHMMs for the Interpretation of Parameterized Gesture." Andrew D. Wilson and Aaron F. Bobick. Computer Vision and Pattern Recogntion, 1998.

"Recognition and Interpretation of Parametric Gesture." Andrew D. Wilson and Aaron F. Bobick. International Conference on Computer Vision, Bombay India, 1998.

"Temporal Classification of Natural Gesture and Application to Video Coding." Andrew D. Wilson, Justine Cassel, and Aaron F. Bobick. Computer Vision and Pattern Recognition, 1997.

"Recovering the Temporal Structure of Natural Gesture." Andrew D. Wilson, Aaron F. Bobick and Justine Cassel. Second Internaitional Conference on Automatic Face and Gesture Recognition, Killington, Vermont, 1996.

"Learning Visual Behavior for Gesture Analysis." Andrew D. Wilson and Aaron F. Bobick. IEEE International Symposium on Computer Vision, Coral Gables, Florida, 1995.

"A State-based Technqiue for the Summarization and Recognition of Gesture." Aaron F. Bobick and Andrew D. Wilson. International Conference on Computer Vision, Cambridge, Massachusetts, 1995.

"Configuration States for the Representation and Recognition of Gesture." Andrew D. Wilson and Aaron F. Bobick. International Workshop on Automatic Face and Gesture Recognition, Zurich, Switzerland, 1995.

Invited Papers

"Using Hidden Markov Models to Model and Recognize Gesture Under Variation." Andrew D. Wilson, Aaron F. Bobick. International Journal on Pattern Recogntion and Artificial Intelligence Special Issue on Hidden Markov Models in Computer Vision, in press.

"State-based Recognition of Gesture." Aaron F. Bobick and Andrew D. Wilson. in M. Shah and R. Jain (editors), Motion-Based Recognition, Kluwer Academic Publishers, 1997.

Refereed and Invited Exhibitions

"Swamped! Using Plush Toys to Direct Autonomous Animated Characters" Bruce Blumberg, Michael P. Johnson, Michal Hlavac, Christopher Kline, Ken Russel, Bill Tomlinson, Song-Yee Yoon, Andrew Wilson, Teresa Marrin, Joseph Paradiso, Jed Wahl, Zoe Teegarden, Dan Stiehl. ACM SIGGRAPH 1998 Enhanced Realities, Orlando, July 1998

"Smart Spaces." Ali Azarbayejani, Christopher Wren, Andrew Wilson, David Becker, Nuria Oliver, Deb Roy, Flavia Sparacino, Francois Berard, Alex Pentland. ACM SIGGRAPH 1996 Digital Bayou, New Orleans, August 1996

Teaching Experience

Massachusetts Institute of Technology   Cambridge, MA
Media Laboratory   1996, 1997
Teaching Assistant, Image Representations for Vision
Assisted students and evaluated lab assignments.