Tetsuya WATANABE, Ph.D.

Associate Professor
Program: Electrical and Information Engineering
Area: Human Interface and Assistive Technology
Undergraduate: Dept. of Biocybernetics

Professional Expertise

Watanabe's main research theme is information and communication technology supporting visually impaired and blind persons. His research covers special needs surveys, perception of speech, Braille, and images, development of assistive software and devices, and accessibility to academic information.

Research Fields of Interest
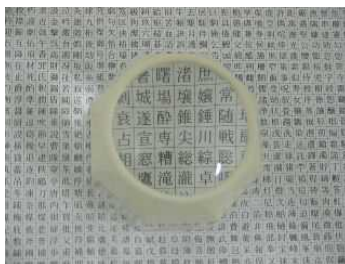
Speech and Screen Readers for the Blind

- Development of Windows Screen Reader

- Research on Fast Speech Perception

- Explanatory Expressions of Kanji Characters by Speech

- Phonetic Alphabet for Screen Readers

Tactile Sense and Blind Persons

- Tactile Map Automatic Creation System (tmacs)

- Electronic Tactile Drawing System

- Tactile Mouse

- Tactile Star Wheel

- Legible Braille Sizes on Capsule Paper

Visual Sense of Low Vision
- Legibility of two-color display of a CCTV

Screen Reader User Survey 2000, 2002, and 2007 Web Accessibility
- Web Accessibility of Educational Web Sites
- Accessibility to PDF files 2003 and 2005

Accessibility to Information at Higher Education and at Academic Society Meetings

Education

2001: Ph.D. Information System Engineering, University of Hokkaido
1993: M.A. Biomedical Engineering, University of Hokkaido
1991: B.A. Electric Engineering, University of Hokkaido

Professional Societies and Activities

1. Chair, SIG on Welfare Information Technology, IEICE (2009-2010).
2. Committee, Jump to Science, National Network for Children with Visual Impairment (2008-present).
3. Chair in Executive Committee, 22nd Annual Meeting of Japanese Association of Rehabilitation for the Visually Impaired (2012-present).
4. 14th International Conference on Computers Helping People with Special Needs, Programme Chair

Awards

1. IEICE Human Communication Award, December 2012.
2. Good Design Award, October 2012.
3. Best Presentation Award, IEICE Human Communication Group, December 2009.
4. Excellent Presentation Award, Human Interface Society, October 2001 and 2003.
5. Excellent Assistive Devices Award, Rehabilitation Engineering Society of Japan, September 1998.
6. Software Product of the Year 1997, Software Information Center, October 1997.

Major Publications

Papers

[1] Tetsuya WATANABE, "Determining the Optimum Font Size for Braille on Capsule Paper," IEICE Trans. on Information & Systems, Vol.E97-D, No.8, 2014. (in print)

[2] Tetsuya Watanabe, Ken Watanabe, et al, "Discriminability of Dot Patterns Embossed by the Tactile Map Automated Creation System," Trans. of IEICE D, Vol.J96-D, No.11, pp. 2737-2745, 2013.

[3] Tetsuya Watanabe, Ken Watanabe, et al, "Evaluation of the Legibility of Tactile Maps Made of Capsule Paper," Trans. of IEICE D, Vol.J96-D, No.4, pp. 1075-1078, 2013.

[4] Ken Watanabe, Tetsuya Watanabe, et al, "Development of an Embossed Map Automated Creation System and Evaluation of the Ligibility of the Maps Produced," Trans. of IEICE D, Vol.J95-D, No.4, 2012.

[5] Tetsuya Watanabe, Toshimitsu Yamaguchi, et al, "Development and Evaluation of a Tactile Map Automated Creation System Accessible to Blind Persons," Trans. of IEICE D, Vol.J 94-D, No.10, pp.1652-1663, 2011.

[6] Tetsuya Watanabe, Susumu Oouchi, Kohki Doi, "Study on Legibility of Enlarged Braille," Trans. of IEICE D, Vol.J94-D, No.1, pp.191-198, 2011.

[7] Tetsuya Watanabe, Tomomi Sasaki, et al, "A Study on Phonetic Alphabet of Screen Readers for Blind Persons - Selection of Words for Explanation Based on Vocabulary Characteristics of Junior High School Students," Trans. of IEICE D, Vol.J92-D, No.5, pp.618-627, 2009.

Book Chapters

[1] Tetsuya Watanabe, "Assistive Technology for Visually Impaired Persons" and other chapters, in Meeting for All: Create Barrier-free Meeting, IEICE (Ed.), IEICE, Tokyo, 2010.

[2] Tetsuya Watanabe, "Assistive Technology for Visually Impaired Persons," in Knowledge Base, IEICE, S3-10-8, http://www.ieice-hbkb.org/portal/doc_index.html.

[3] Tetsuya Watanabe, "Assistive Technology for Persons with Developmental Disabilities," in Guidebook of Human, Health-care and Welfare Technology, Akamatsu et al (Ed.), Asakura Publishing, Tokyo, 2012.