

Kaoru Sumi

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PERSONAL INFORMATION

Current Position: Professor, Department of Information Architecture, Future University Hakodate

ACADEMIC BACKGROUND

Ph.D. Engineering

University of Tokyo, 1999

M.S. Management Systems Science

University of Tsukuba, 1995

B.Sc. Physics

Tokyo University of Science, 1988

PROFESSIONAL EXPERIENCE

Future University Hakodate – Professor

2011 – Present

- Leading research in Human-Agent Interaction, Affective Computing, and Persuasive Technology.
- Supervising international and domestic graduate students in cutting-edge AI projects.
- Conducting interdisciplinary research integrating AI, robotics, and Metaverse.

University of Alcalá, Spain – Invited Research Fellow, Giner de los Ríos Program (Spanish Ministry of Education)

2025

- Conversational Interaction in Human-Agent Systems

University of British Columbia, Canada – Visiting Professor

2018

- Delivered lectures on AI and interactive systems.
- Conducted cross-cultural studies on emotion modeling in Human-Robot Interaction.

Hitotsubashi University – Associate Professor

2009 – 2011

- Focused on computational methodologies in social sciences.
- Developed advanced curricula for interdisciplinary studies.

National Institute of Information and Communications Technology – Researcher

2004 – 2009

- Conducted groundbreaking research on intelligent systems and human-computer interaction.
- Led projects on virtual agents and their applications in communication and learning environments.

Osaka University – Assistant Professor

2000 – 2004

- Collaborated on industry-sponsored projects in AI and user interface design.

Communications Research Laboratory – Researcher

1998 – 2000

- Worked on advanced research in multimedia and interactive communication technologies.

ATR Media Information Science Laboratories – Special Research Fellow

1996 – 1998

- Developed prototypes for future intelligent interaction platforms.
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RESEARCH INTEREST

Human-Agent and Human-Robot Interaction (HAI, HRI) | Emotion Modeling and Affective Computing | Persuasive Technology | AI in Education and Training Systems | Mixed Reality (MR) and Virtual Reality (VR) Systems | Serious Games |

HONORS & AWARDS

- **Best Technical Paper Award** – International Conference on Computers in Education (ICCE2020)
- **Best Full Paper Award** – International Conference on Intelligent Tutoring Systems (ITS2019)
- **IEEE Brain Winner** – Brain-Computer Interface Hackathon at IEEE SMC 2018
- **ACM Award: Senior Member** – Association for Computing Machinery
- **Outstanding Presentation Award** – Information Processing Society of Japan (2021, 2017)

SELECTED PUBLICATION

- Forthcoming Book
Sumi, K. *Affective Learning and Serious Games*. CRC Press. (Expected publication: 2025)
- Kaoru Sumi and Okuyama Ryo: Training System for Converting Current Visual Information to Bird's Eye View, *Frontiers in Psychology*, 15, -Movement Science, (2024.12).
- Ahmed Salem and Kaoru Sumi, Deception Detection in Educational AI: Challenges for Japanese Middle School Students in Interacting with Generative AI Robots, *Frontiers in Artificial Intelligence*, 7, AI for Human Learning and Behavior Change (2024.12).
- Rio Harada, Kaoru Sumi. Persuasive Technology Through Behavior and Emotion with Pet-Type Artifacts. In: Baghaei, N., Ali, R., Win, K., Oyibo, K. (eds) *Persuasive Technology. PERSUASIVE 2024. Lecture Notes in Computer Science*, vol 14636. Springer, Cham(2024.4).
- Kaoru Sumi & Shusuke Sato: Experiences of Game-Based Learning and Reviewing History of the Experience Using Player's Emotions, *Frontiers in Artificial Intelligence*, Vol.5 (2022).
- Nitchan Jianwattanapaisarn, Kaoru Sumi, Akira Utsumi, Nirattaya Khamsemanan and Cholwich Nattee: Emotional Characteristic Analysis of Human Gait while Real-Time Movie Viewing, *Frontiers in Artificial Intelligence* (2022).
- Thomas James Z. Tiam-Lee and Kaoru Sumi: Analysis and prediction of student emotions while doing programming exercises. *International Conference on Intelligent Tutoring Systems, Lecture Notes in Computer Science*, (2019). (Best Full Paper Award).
- Kaoru Sumi, Keigo Yabuki, Thomas James Tiam-Lee, Abdelkader Nasreddine Belkacem, Quentin Ferre, Shogo Hirai and Teruto Endo, *A Cooperative Game Using the P300 EEG-Based Brain-Computer Interface, Assistive & Rehabilitation Engineering*, ISBN 978-1-78923-884-6(2019).
- Kaoru Sumi and Kodai Kasai: A Serious Game for Learning Social Networking Literacy by Flaming Experiences, *Lecture Notes in Computer Science, Volume 178, Social Informatics and Telecommunications Engineering series*, Springer (2016.05).

KEYNOTE & INVITED TALKS

- Kaoru Sumi: Persuasive Technology and Emotions, Behavior Transformation by IoT International Workshop2024 (BTIW2024) on ACM Mobisys2024, 2024.6, Keynote Talk
- Kaoru Sumi: Artificial Intelligence for the Future of Learning and Experiences in Training Students, Symposium on APEC ICT Skill Standards for AI, 2023.5, Plenary Talk
- Kaoru Sumi: Human to Human Interaction using Virtual Agents Posing as Another Person, International Conference on Artificial Life and Robotics (ICAROB2022), 2023.2. Plenary Talk
- Kaoru Sumi: Designing Human Interacting Robots and Virtual Agents Learning from Affective Computing, Shonan Meeting No.177, 2023.1. Keynote Talk
- Kaoru Sumi: The Future of Educational Technology using Emotions and Virtual Spaces, Embracing Computing Innovations through Research Advancement and Discoveries, International Research Conference on Computer Engineering and Technology Education (IRCCETE 2023),The Institute of Computer Engineers of the Philippines (ICpEP), 2023.1. Keynote Talk

PROFESSIONAL MEMBERSHIP

- Senior Member – IEEE (2020 – Present)
- Senior Member – ACM (2008 – Present)
- Member – Japanese Society for Artificial Intelligence (JSAI)
- Member – Information Processing Society of Japan (IPSJ)

TEACHING & MENTORSHIP

- Course Design and Delivery
 - Developed and delivered graduate-level courses, such as "Introduction to Interactive Systems" and "AI and Media," integrating cutting-edge research and practical applications.
 - Designed PBL (Project-Based Learning) programs for 60+ students annually, focusing on AI, machine learning, and human-robot interaction
- Student Mentorship
 - Supervised doctoral, master's, and undergraduate research projects, leading to 15+ student awards at national and international conferences.
 - Supported international students from the Philippines, Thailand, and other countries, fostering cross-cultural research collaboration.
 - Successfully guided students to receive full or partial tuition waivers based on academic excellence.
- Outreach and Community Engagement
 - Supervised doctoral, master's, and undergraduate research projects, leading to 15+ student awards at national and international conferences.
 - Supported international students from the Philippines, Thailand, and other countries, fostering cross-cultural research collaboration.
 - Successfully guided students to receive full or partial tuition waivers based on academic excellence.

PROFESSIONAL ROLES & LEADERSHIP

Journal Editorial Roles

- **Associate Editor** – Journal of Behavior & Information Technology (Taylor & Francis), 2024 – Present
- **Associate Editor** – Frontiers in Artificial Intelligence for Human Learning and Behavior Change, 2025 – Present
- **Guest Editor**, JoVE Methods Collection: Interactive Technologies for Behavior Change and Emotional Engagement (Special Issue)
- **Editorial Board Member** – Philippine Computing Journal, 2022 – Present

Professional Roles in IEEE

- **Executive Board Member** – IEEE Sapporo Section, 2023 – Present
Participated in strategic planning and decision-making for IEEE regional activities.
- **Japan Council WIE Coordinator** – IEEE, 2025 – Present
Represented and managed national-level WIE activities, collaborating with various IEEE sections across Japan.
- **Chair** – IEEE Sapporo Section Women in Engineering (WIE), 2020 – Present
Coordinated initiatives to promote diversity and inclusion in engineering fields.
Organized workshops and mentorship programs for young professionals and students.

Conference Organizing Roles

- **General Chair** – International Conference on Persuasive Technology 2026
- **Workshop Chair** – IEEE COMPSAC Workshop on Interactive Systems and Affective Computing, 2024
- **Program Committee Member** – International Conference on Intelligent Tutoring Systems (ITS), 2020 – 2023

Professional Roles in Government & Policy

- **IEEE Japan Council Representative** – Liaison Conference for the Promotion of Gender Equality, Cabinet Office, Government of Japan, 2025 – Present
Contributed to national-level discussions and policy coordination on gender equality as an academic and professional representative.
- **Committee Member** – Science Research Grants Committee (Engineering Division), Ministry of Education, Culture, Sports, Science and Technology (MEXT), Japan, 2013 – 2014
Reviewed competitive research grant proposals in engineering fields and advised on national funding allocations.

International Academic Service

External Academic Review

- External Referee for Promotion and Tenure Review (Associate Professor with Tenure), York University, Canada (2026)

Doctoral Dissertation Committees

- PhD Dissertation Committee Member, De La Salle University, Philippines
- PhD Dissertation Committee Member, Thammasat University, Thailand