

JST Strategic Basic Research Program
(Social Technology Research and Development)
2021 Research and Development
Implementation Report

“Human-Information Technology Ecosystem”

Research and Development Focus Area

“Emotional AI in Cities: Cross Cultural Lessons from
UK and Japan on Designing for An Ethical Life”

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1. R&D Project Name

“Emotional AI in Cities: Cross Cultural Lessons from UK and Japan
on Designing for An Ethical Life”

2. Specific Details of Research and Development

2-1. Research and Development Goals

1. Understand what it means to live ethically and well with EAI in cities, by understanding the emergence of EAI in cities; its social, spatial and temporal implications; and engaging with diverse EAI and smart city stakeholders in UK-Japan. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

2. Raise awareness of UK-Japanese stakeholders (technology industry, policymakers, NGOs, security services, urban planners, media outlets, citizens) on how to live ethically and well with EAI in cities. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

3. Advance collaboration between UK-Japan academics, disciplines and stakeholders in EAI. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

4. Undertake comparative cross-cultural UK-Japan analysis on how EAI impacts commercial, security and civic contexts. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

5. Ascertain how EAI may impact security stakeholders and organizations in the new media ecology via interviews with these stakeholders and case studies in UK-Japan. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

6. Formulate governance approaches for collection and use of intimate data about emotions in public spaces (e.g. privacy laws, ethics frameworks, technology standards, design-led regulation) to understand how these guide EAI developments, in order to build a

repository of best practice on EAI in cities. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

7. Advance novel scientific insights across surveillance studies, new media, information technology law, security & policing studies, science & technology studies, affective computing. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

8. Constructing an online think tank to provide impartial ethical advice on EAI and cross-cultural issues to diverse stakeholders during and after the project. (This goal is currently in process however, due to COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, we did much from tele-working).

2-2. Implementation and Results of the Research and Development

(1) Schedule

Timeline	2020			2021			2022			2023		
	0-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36	37-40	41-44	45
Stage 1	Literature Review: Mapping ecology of emotional AI											
Stage 2	Collect data: Commerce (UK done/Japan done)											
Stage 3	Collect data: Security (UK done/Japan done)											
Stage 4	Collect data: Civic discourse (UK/Japan done)											
Stage 5				National Surveys: 1. Perception of emotional AI in various sectors (UK and Japan done). 2. Attitude toward healthcare AI in Japan (Japan done)								
Stage 6					Four citizen workshops: UK & Japan done							
Stage 7	Cross-cutting themes for data collection, analysis, and dissemination: Diversity, age, health, ethics											
Stage 8											Policy workshop UK & Japan	

(2) Implementation details

1. Understand what it means to live ethically and well with EAI in cities, by understanding the emergence of EAI in cities; its social, spatial and temporal implications; and engaging with diverse EAI and smart city stakeholders in UK-Japan.

To achieve this goal, we have:

- (i) conducted two municipal surveys in 2021 – The first for health care workers and the second for senior citizens. We received 246 responses in total, and we are currently doing data analysis employing advanced Bayesian statistics.**
- (ii) conducted two national surveys in 2021 - Survey One was a general survey to determine EAI acceptance in various contexts: workplace, home, toys, public security, politics, etc. Survey Two was specifically focus on public attitudes toward AI applications in Japanese healthcare system. For each survey, we received 2,000 responses from Japanese citizens across 5 different age groups, 8 regions in Japan, 5 income levels, and 5 educational qualifications.**
- (iii) Four citizen workshops for four demographic groups: Age 20-35/Age +65/Special Needs/Minority groups. The workshop introduces the existing emotional AI applications and gives the participants scenarios where emotional AI is part of their daily life. Questions concerning how to live well and ethically such as privacy concerns, usefulness perception, with emotional AI are discussed in the space of 3 hours.**
- (iv) 12 published works in top-ranking journals indexed in Web of Science, SSCI and Scopus such as Humanities and Social Sciences Communications (Nature Research Journal), AI & Society (Springer Nature); Technology in Society, Emotion, Space and Society, Computer & Law Review (Elsevier); Sign Systems Studies (University of Tartu Press, Estonia); Asian Bioethics Review (Springer Nature); etc.**
- (v) performed collaborative planning and research with UK counterparts via Zoom.**

2. *Raise awareness of UK-Japanese stakeholders (technology industry, policymakers, NGOs, security services, urban planners, media outlets, citizens) on how to live ethically and well with EAI in cities.*

- **Miyashita, H. (2021) Formiche, Lo scandalo Line scuote il Far East. È ancora accettabile delocalizzare servizi digitali? 11 May 2021**
- **Miyashita, H. (2021) NHK, Shitenronten, Privacy Protection in an Age of AI, 14 Sept. 2021.**
- **Miyashita, H. (2021) Asahi Shimbun, Plan to use facial recognition at JR East stations to spot ex-cons iced, 22 Sept. 2021.**
- **Miyashita, H. (2021) Nikkei BP, Filter Bubble resulting in Divisiveness, 10 Dec. 2021**

3. *Advance collaboration between UK-Japan academics, disciplines & stakeholders in EAI.*

Mantello, P., Ho MT, Podoletz, L (2022) 'Automating Extremism: Mapping the Affective Role of Artificially Intelligent Agents in Online Radicalisation' in Pashentsev et al., Malicious Use of Artificial Intelligence, Palgrave (In Press).

4. *Undertake comparative cross-cultural UK-Japan analysis on how EAI impacts commercial, security and civic contexts.*

See outcomes – UK/Japan Citizen Workshops

5. *Ascertain how EAI may impact security stakeholders and organizations in the new media ecology via interviews with these stakeholders and case studies in UK-Japan.*

See Outcomes

6. *Formulate governance approaches for collection and use of intimate data about emotions in public spaces (e.g. privacy laws, ethics frameworks, technology standards, design-led regulation) to understand how these guide EAI developments, in order to build a repository of best practice on EAI in cities.*

- **Miyashita, H. (2021) TV Asahi, LINE Personal Information Protection Management, 24 Mar. 2021.**
- **Miyashita, H. (2021) Japan Times, Line data scandal alerts Japan of need to get serious about data protection, 22 Apr. 2021**
- **Miyashita, H. (2021) Toyo Keizai, A Perspective Lacking of the Japan's AI Utilization, 24 Apr. 2021.**

7. *Advance novel scientific insights across surveillance studies, new media, information technology law, security & policing studies, science & technology studies, affective computing.*

See Outcomes

8. *Constructing an online think tank to provide impartial ethical advice on EAI and cross-cultural issues to diverse stakeholders during and after the project.*

=> We have hold talks with the Dean of Graduate School of Asia Pacific Studies, APU to explore a possibility of setting up a research center called “Research center for human-centric AI governance.” Moreover, we have finished setting up a website (ethikal.ai) that will frequent publicize latest trends and key concerns of the development of emotional AI.

(3) Outcomes

Based on the data and materials collected, we have produced 12 academic papers/book chapters (Published, Under Review, Forthcoming) on various aspects of emotional AI.

1. Mantello, P., Ho MT., Nguyen, MH., Nguyen HK., Vuong, QH (2022) 'Mapping Gen Z opinions of non-conscious data collection: Rethinking Technological Acceptance in the age of Emotional AI, *Technology in Society*, Elsevier (under review).
2. Mantello, P., Ho MT., Podoletz, L. (2022) 'Automating Extremism: Mapping the Affective Role of Artificially Intelligent Agents in Online Radicalisation' in Pashentsev et al., *Malicious Use of Artificial Intelligence*, Palgrave (In Press).
3. Mantello, P., Ho MT., Nguyen MH., Vuong QH. (2021) *Bosses without a heart: Socio-demographic and cross-cultural determinants of attitude towards attitudes toward emotional AI in the workplace. AI & Society*, 36; Springer Nature.
4. Ho, M.T., Mantello, P., Nguyen, M., and Vuong Q.H. (2021) 'Affective computing scholarship and the rise of China: A view from the 25 years of bibliometric data', *Humanities and Social Sciences Communications*, Nature Series, Palgrave.
5. Mantello, P. (2021) 'Fatal Portraits: The Selfie as Agent of Radicalization', *Sign Systems Studies* 49 (3/4), University of Tartu Press, Estonia.
6. Mantello, P. and Ponton, D., “Virality, Emotion and Public Discourse: The role of memes as prophylaxis and catharsis in an age of crisis” in *Discourse and Rhetoric amid COVID 19 Pandemic: Dis/Articulating The ‘New Normal,’* special issue for *Journal of Rhetoric and Communication E-Journal*, Issue 47, Jan. 2021. ISSN 1341-4464.
7. Ghotbi, N., Ho, M.T. & Mantello, P. Attitude of college students towards ethical issues of artificial intelligence in an international university in Japan. *AI & Soc* (2021). <https://doi.org/10.1007/s00146-021-01168-2> (Published by *Springer Nature*). (Q1 Philosophy, Scopus).

8. Miyashita, H. (2021) *The Right of Privacy (Iwanamishoten 2021)* (in Japanese).
<https://www.iwanami.co.jp/book/b556137.html>
 9. Miyashita, H. (2021) *Privacy*, in *Information Ethics Introduction (Jyoho Rinri Nyumon)* eds. by Kiyoshi Murata & Yoko Orito (Mineruva Shobo 2021) ch.5 (in part) (in Japanese)
 10. Tanaka, H. In press/2021. “The youth’s social media use and gender.” *Information and Communication Studies 2020*.
 11. Tanaka, H. Forthcoming/2021. “Gender and Media.” Kadobayashi, Takeshi, and Masuda, Norihiro, eds. *Critical Words: Media Theory*. Tokyo: Film Art, Inc.
 12. Tanaka, H. Forthcoming /scheduled 2021. “Digital Technology and Gender.” Gender Center, Meiji University, ed. *Diversity and Creativity in the Twenty-first Century*. Tokyo: Meiji University Press
 13. Ho, M.T. Book Review: Lisa F. Barrett’s *How emotions are made: The secret life of the brain. Emotion, Space, and Society*, 2021 (Published by Elsevier, Impact Factor: 1.65, Q1 Social Psychology Scopus)
<https://doi.org/10.1016/j.emospa.2021.100791>
 14. Ho, M.T. Book Review: Andrew McStay’s *Emotional AI: The rise of Empathic Media*. *International Journal of Emotional Education*, 2021 (Published by University of Malta, Q2 Education Scopus).
- Moreover, we have finished setting up a website (ethikal.ai) that will frequent publicize latest trends and key concerns of the development of emotional AI.
 - We have implemented two municipal surveys in conjunction with Beppu City Hall. The first targets senior citizens and the second targets Medical Professions. The goal of the survey is to gauge perceptions and attitudes to emotional AI applications in future health care in Japan.
 - We have conducted four citizen workshops to gauge perceptions and attitudes to emotional ai. The four workshops were Age 20-35, Age 65+, Special Needs, and Foreign Residents.
 - We have implemented two national surveys. A general one pertaining to determining technological acceptance for emotion-sensing technology and another focusing on Emotional AI and Health care.

(4) Summary of results for the year in question / Issues for the next year

- **12 publications (Please see Outcomes above for complete list)**
- **Implementation of 2 municipal health surveys to determine perceptions of EAI**
- **2 national surveys. One focusing on general applications of EAI and the other specifically, on EAI and healthcare**
- **Attendance at Online Conferences.**
- **Zoom Interviews**
- **UK/Japan monthly Zoom meetings**
- **Updating and Maintenance of Website for promotion of our research**

2-3. Meetings and Other Activities

Date	Name	Location	Summary
Apr 16, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
May 10, 2021	UK/ Japan Team Meet	Zoom	Discussion of Progress and Actions
June 15, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
July 11, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
Sept 09, 2021	UK/Japan Team Meet	Zoom	Discussion of Progress and Actions
Oct 29, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
Nov 15, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions

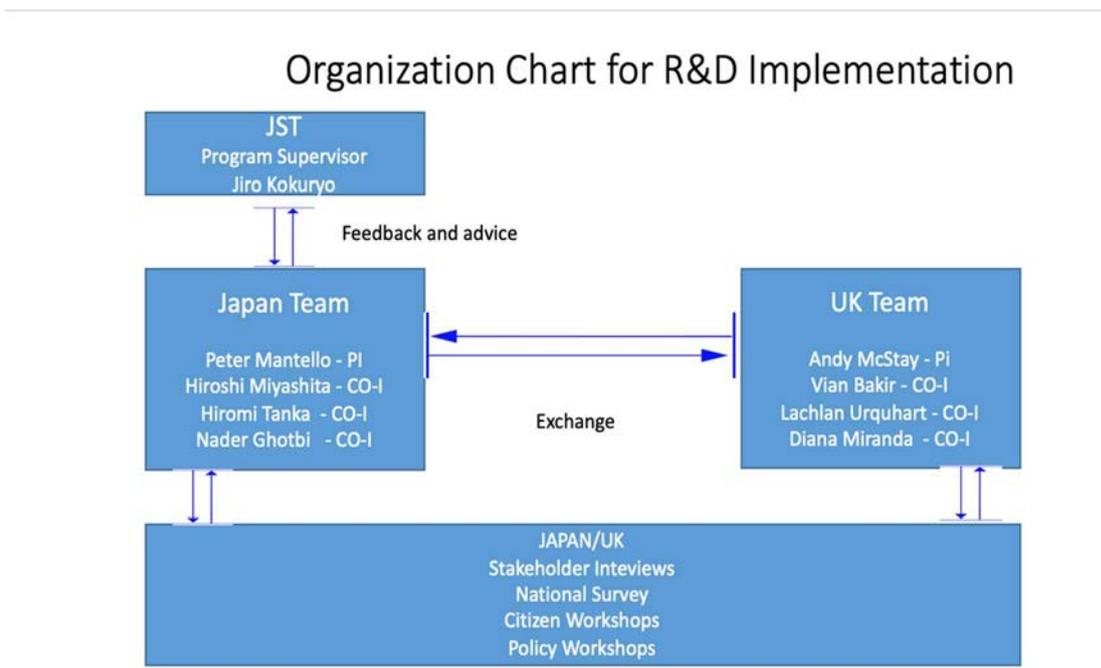
Date	Name	Location	Summary
Jan 30, 2022	Japan Team Meet	Zoom	Discussion of Progress and Actions

Feb 28, 2022	UK/Japan Team Meet	Zoom	Principal Investigator from the UK side presented his work-in-progress on ethics and beliefs systems in contemporary Japan and how they might influence technological adoption of emotional AI technologies.
Mar 30, 2022	UK/Japan Team Meet	Zoom	Nader Ghotbi, <i>Preliminary Insights from in-depth interviews on emotional AI's social impacts with the Japanese companies and stakeholders</i>
Apr.29, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
May 5,, 2021	UK/Japan Team Meet	Zoom	UK team discusse their recent works on Emotional AI and civic discourse.

3. Application and Deployment Status of Research and Development Outcomes

Timeline	2020			2021			2022			2023		
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Stage 5					National Surveys: 1. <i>Perception of emotional AI in various sectors</i> (UK and Japan done). 2. <i>Attitude toward healthcare AI in Japan</i> (Japan done)							
Stage 6						Four citizen workshops: UK & Japan done						
Stage 7	Cross-cutting themes for data collection, analysis, and dissemination: Diversity, age, health, ethics											
Stage 8											Policy workshop UK & Japan	

4. Research and Development Implementation Framework



5. Participants in the Research and Development

Name	Affiliated institution	Affiliated department	Post (Status)
Peter Mantello	APU	APS	
Nader Ghotbi	APU	APS	
Hiroshi Miyashita	Chuo University	Policy Studies	
Hiromi Tanka	Meiji University	Digital Media And Gender	
Tung Manh Ho	APU	APS	

6. Presentation and Communication Status of R&D Outcomes, Outreach Activities, etc.

6-1. Symposiums, etc.

6-2. Communication with the Public, Outreach Activities, etc.

Raise awareness of UK-Japanese stakeholders (technology industry, policymakers, NGOs, security services, urban planners, media outlets, citizens) on how to live ethically and well with EAI in cities.

(1) Publications such as books, booklets, DVDs, etc.

- Miyashita, H. (2021) The Right of Privacy (Iwanamishoten 2021) (in Japanese). <https://www.iwanami.co.jp/book/b556137.html>

(2) Establishment and operation of web media

- **Website:** www.ethikal.ai
- Facebook and Instagram Accounts titled *ethikal AI*
- Video: Emotional Artificial Intelligence, <https://www.youtube.com/watch?v=gQ3hCWklSho>, July 2nd, 2021)

(3) Invited lectures at symposiums etc. other than academic conferences (see 6-4.)

- Mantello, P. (Dec. 4 and 12th, 2021) “AI and Society”, International Virtual Mini University Program, Ritsumeikan Asia Pacific University

6-3. Paper Publications

(1) Peer reviewed (15 articles)

1. Mantello, P., Ho MT., Nguyen, MH., Nguyen HK., Vuong, QH (2022) 'Mapping Gen Z opinions of non-conscious data collection: Rethinking Technological Acceptance in the age of Emotional AI, Technology in Society, Elsevier (under review).
2. Mantello, P., Ho MT., Podoletz, L. (2022) 'Automating Extremism: Mapping the Affective Role of Artificially Intelligent Agents in Online Radicalisation' in Pashentsev et al., Malicious Use of Artificial Intelligence, Palgrave (In Press).
3. Mantello, P., Ho MT., Nguyen MH., Vuong QH. (2021) Bosses without a heart: Socio-demographic and cross-cultural determinants of attitude towards attitudes toward emotional AI in the workplace. *AI & Society*, 36; Springer Nature.
4. Ho, M.T., Mantello, P., Nguyen, M., and Vuong Q.H. (2021) 'Affective computing scholarship and the rise of China: A view from the 25 years of bibliometric data', *Humanities and Social Sciences Communications*, Nature Series, Palgrave.
5. Mantello, P. (2021) 'Fatal Portraits: The Selfie as Agent of Radicalization', *Sign Systems Studies* 49 (3/4), University of Tartu Press, Estonia.
6. Mantello, P. and Ponton, D., "Virality, Emotion and Public Discourse: The role of memes as prophylaxis and catharsis in an age of crisis" in *Discourse and Rhetoric amid COVID 19 Pandemic: Dis/Articulating The 'New Normal,'* special issue for *Journal of Rhetoric and Communication E-Journal*, Issue 47, Jan. 2021. ISSN 1341-4464.
7. Ghotbi, N., Ho, M.T. & Mantello, P. Attitude of college students towards ethical issues of artificial intelligence in an international university in Japan. *AI & Soc* (2021). <https://doi.org/10.1007/s00146-021-01168-2> (Published by Springer Nature). (Q1 Philosophy, Scopus).
8. Miyashita, H. (2021) *The Right of Privacy* (Iwanamishoten 2021) (in Japanese). <https://www.iwanami.co.jp/book/b556137.html>
9. Miyashita, H. (2021) *Privacy*, in *Information Ethics Introduction* (Jyoho Rinri Nyumon) eds. by Kiyoshi Murata & Yoko Orito (Mineruva Shobo 2021) ch.5 (in part) (in Japanese) <https://www.minervashobo.co.jp/book/b563387.html>
10. Tanaka, H. In press/2021. "The youth's social media use and gender." *Information and Communication Studies* 2020.

11. Tanaka, H. Forthcoming/2021. “Gender and Media.” Kadobayashi, Takeshi, and Masuda, Norihiro, eds. *Critical Words: Media Theory*. Tokyo: Film Art, Inc.
12. Tanaka, H. Forthcoming /scheduled 2021. “Digital Technology and Gender.” Gender Center, Meiji University, ed. *Diversity and Creativity in the Twenty-first Century*. Tokyo: Meiji University Press
13. Ho, M.T. Book Review: Lisa F. Barrett’s *How emotions are made: The secret life of the brain. Emotion, Space, and Society*, 2021 (Published by Elsevier, Impact Factor: 1.65, Q1 Social Psychology Scopus) <https://doi.org/10.1016/j.emospa.2021.100791>
14. Ho, M.T. Book Review: Andrew McStay’s *Emotional AI: The rise of Empathic Media*. *International Journal of Emotional Education*, 2021 (Published by University of Malta, Q2 Education Scopus).
15. Ghotbi, N. & Ho, M.T. 2021. **Moral awareness of college students regarding artificial intelligence**. *Asian Bioethics Review* 13:421–433.

6-4. Oral Presentations (presentations at international conferences and major domestic conferences)

(1) Invited lectures

- Prague City Data Congress Conference Oct 26-27, 2021. Attendance.
- “Socio-cultural and demographic factors in the perception of non-conscious emotional data harvesting.” Asia Pacific Conference 2021. December 4-December 5, 2021. In the panel session on *ICT, Society and Management*. Presented by RA Ho Manh Tung.

6-5. Newspaper/TV Coverage, Posting, Awards, etc.

(1) Newspaper coverage

- **Miyashita, H. (2021) Formiche, Lo scandalo Line scuote il Far East. È ancora accettabile delocalizzare servizi digitali? 11 May 2021**
- **Miyashita, H. (2021) NHK, Shitenronten, Privacy Protection in an Age of AI, 14 Sept. 2021.**
- **Miyashita, H. (2021) Asahi Shimbun, Plan to use facial recognition at JR East stations to spot ex-cons iced, 22 Sept. 2021.**
- **Miyashita, H. (2021) Nikkei BP, Filter Bubble resulting in Divisiveness, 10 Dec. 2021**
- **Miyashita, H. (2021) TV Asahi, LINE Personal Information Protection Management, 24 Mar. 2021.**
- **Miyashita, H. (2021) Japan Times, Line data scandal alerts Japan of need to get serious about data protection, 22 Apr. 2021**

- **Miyashita, H. (2021) Toyo Keizai, A Perspective Lacking of the Japan’s AI Utilization, 24 Apr. 2021.**