

JST Strategic Basic Research Program
(Social Technology Research and Development)
2020 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 Conducted

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 ,because of COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, so we are doing this 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 ,because of COVID-19 restrictions, state of emergency, lock-downs, travel bans and institutional closings, so we are doing this from tele-working).

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

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

(1) Schedule

Timeline	2020			2021			2022			2023 (3 month extension)	(9 month extension)	
Month	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. Map emotional AI											
Stage 2	Collect data: commerce (UK done/ Japan ongoing)											
Stage 3	Collect data: security (UK /Japan ongoing)											
Stage 4	Collect data: civic discourse/media (UK /Japan ongoing)											
Stage 5	Collect data: governance (UK /Japan ongoing)											
Stage 6				Survey UK & Japan								
Stage 7	Cross-cutting themes for data collection, analysis & dissemination: diversity, age, health, ethics											
Stage 8											Policy Workshop UK & Japan	
Stage 9	Dissemination/ Impact activities incl. setting up think tank											
Advisory Board				Send yr1 report			Send yr2 report			Send final report		

(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 a survey of 1,015 domestic and international students in Japan on their perception of emotional AI In the workplace;**
- (ii) collected and analysed 286 essays of students on their top AI ethical concerns using text mining and sentiment analysis;**
- (iii) designed two surveys to study citizen and medical professionals’ perceptions of emotional AI in the healthcare setting,**
- (iv) conducted 12 in-depth interviews with various stakeholders**
- (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.

During the 2020 fiscal year, we have held 12 in-depth interviews with the following companies and stakeholders in Japan.

- Toru Nakamura SVP CFO – TalentA of HIREVU Japan (Mantello and Manh Ho)**
- Hazumu Yamazaki, Chief Strategy Officer, EMPATH, Japan (Mantello and Manh Ho)**
- Habib Iman, Deputy Director, SOFTBANK ROBOTICS, Japan (Mantello)**
- Hiroshi Maruyama, Chief Officer, PREFERRED NETWORKS, Japan (Mantello and Manh Ho)**
- Cristian Vlad, Associate Partner, Talent and Engagement Global Business Services, IBM, Japan, (Mantello and Manh Ho)**
- Jinzai Kenkyusho, Chief Strategy Officer, Human Resource Research Institute, Japan (Mantello, Tanaka and Manh Ho)**
- Toshimitsu Suwa, CEO, Talented People Laboratory (Mantello, Tanaka and Manh Ho)**
- York Date, CEO, BUSINESS RESEARCH LAP, Japan , (Mantello, Tanaka & Manh Ho)**
- Mr. Obata, ELSYS Japan, (Mantello, Miyashita, Tanaka and Manh Ho)**

- **Ryobei Obuchi, CEO of WALCUL, Japan (Tanaka and Manh Ho)**
- **Hossein Terani, Chief Engineer for DENTSU R&D for TOYOTA (Mantello and Ghotbi)**
- **Kyoko Tanaka, Country Manager REALEYES Japan. And Katsuhiko Kumagai from NEC, lead of emotion tech project and Digital Experience Design team**

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

We have submitted the following book chapter to a forthcoming book on *Machine Learning and the City* (published with Wiley).

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

Authors: The Emotional AI Lab (Prof. Vian Bakir (Bangor), Prof. Nader Ghotbi (Ritsumeikan Asia Pacific), Mr. Tung Manh Ho (Ritsumeikan Asia Pacific), Prof. Peter Mantello (Ritsumeikan Asia Pacific), Prof. Andrew McStay (Bangor), Dr. Diana Miranda (Northumbria), Prof. Hiroshi Miyashita (Chuo), Dr. Lena Podoletz (Edinburgh), Dr. Hiromi Tanaka (Meiji), Dr. Lachlan Urquhart (Edinburgh).

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

During the 2020 fiscal year, we have held three talks between the UK and Japan side to exchange information and data on the state-of-the-art emotional AI technologies.

- **Mantello Peter. *Preliminary Insights from in-depth interviews on emotional AI's social impacts with the Japanese companies and stakeholders* (March 7 2021).**
- **Bakir Vian. *Emotional AI and Civic Discourse*. (March 31, 2021)**
- **McStay Andrew. *Ethics and beliefs systems in contemporary Japan*. (February 16 2021).**

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.*

We have conducted a series of interviews and conversations with NEC and ELSYS JP, which are top security companies in Japan.

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.

=> Our co-investigator, Prof. Miyashita has frequently appeared in popular media to advance the discourse on security issues related to the rise of emotional AI.

- **Can security be improved by bringing personal data back to Japan?
Published in *Japan Times*.**
- **Can security be improved by bringing personal data back to Japan?
Published in *Japan Times*.**

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

=> We have produced the following academic papers on the topic.

- **Miyashita, H., EU-Japan Mutual Adequacy Decision, in Yumiko Nakanishi & Olivia Tambou (eds.), The EU-Japan Relationship, Open Access Book, 2020.**
- **Miyashita, H. Human-centric Data Protection Laws and Policies: A Lesson from Japan, Computer Law and Security Review, October 2020.**
- **Miyashita, H. Covid-19 and Data Protection in Japan, Blog droit européen, 31 July 2020.**

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 14 academic papers (Published, Under Review, Forthcoming) on various aspects of living ethically with emotional AI.

1. **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.**
2. **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).
3. Mantello, P. **Fatal Portraits: Battlefield Selfies and rise of Jihadist as Micro-Influencer.** (Under review at *Journal of Computer-Mediated Communication, Oxford University Press*) (Q1 in Scopus and Web of Science).
 4. Mantello, P., Ho, M.T., Nguyen, M.H., & Vuong, Q. H. **Bosses without a heart: Socio-demographic and cross-cultural determinants of perception toward emotional AI in the workplace.** (Under Review in *AI & Society, Published by Springer Nature*). (Q1 Philosophy, Scopus).
 5. Mantello, P., Ho, M.T., Nguyen, T.H.K, & Vuong, Q. H. **Affective computing scholarship and the rise of China.** (Under Review at *Nature Research’s Humanities and Social Sciences Communications*). (Web of Science and Scopus).
 6. Miyashita, H., **EU-Japan Mutual Adequacy Decision,** in Yumiko Nakanishi & Olivia Tambou (eds.), *The EU-Japan Relationship, Open Access Book, 2020.*
 7. Miyashita, H. **Human-centric Data Protection Laws and Policies: A Lesson from Japan,** *Computer Law and Security Review, October 2020.*
 8. Miyashita, H. **Covid-19 and Data Protection in Japan,** *Blog droit européen, 31 July 2020.*
 9. Tanaka, H. **In press/2021. “The youth’s social media use and gender.”** *Information and Communication Studies 2020.*
 10. Tanaka, H. **Forthcoming/2021. “Gender and Media.”** Kadobayashi, Takeshi, and Masuda, Norihiro, eds. *Critical Words: Media Theory.* Tokyo: Film Art, Inc.
 11. 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
 12. Ho, M.T., Mantello, P., Ghotbi, N., Nguyen, M.H., Nguyen, T.H.K, & Vuong, Q. H. **Privacy perception of international students in the era of non-conscious data harvesting.** (Under review at *Foresight and STI Governance, Published by National University of Russia, Higher School of Economics*) (Q1 Scopus).
 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).

- **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.**
- **We are also implementing 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.**

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

- **14 publications (Please see Outcomes above for complete list)**
- **Implementation of student survey to gauge perceptions of EAI- resulted in publication in Q1 journal – AI and Society**
- **Attendance at Online Conferences.**
- **Zoom Interviews**
- **UK/Japan monthly Zoom meetings**
- **Coordination of City Wide Healthcare Survey intended for Healthcare Professionals and the elderly. The survey is now being implement in coordination and assistance with Beppu City Hall.**
- **Construction of Website for promotion of our research**
- **Completion of a short documentary on Emotional AI and affective labor**

2-3. Meetings and Other Activities

Date	Name	Location	Summary
Apr 10, 2020	Japan Team Meet	Zoom	Discussion of Progress and Actions
May 15, 2020	UK/ Japan Team Meet	Zoom	Discussion of Progress and Actions
June 8, 2020	Japan Team Meet	Zoom	Discussion of Progress and Actions
July 14, 2020	Japan Team Meet	Zoom	Discussion of Progress and Actions
Sept 18, 2020	UK/Japan Team Meet	Zoom	Discussion of Progress and Actions
Oct 20, 2020	Japan Team Meet	Zoom	Discussion of Progress and Actions
Nov 23, 2020	Japan Team Meet	Zoom	Discussion of Progress and Actions

Date	Name	Location	Summary
Jan 22, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
Feb 16, 2021	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

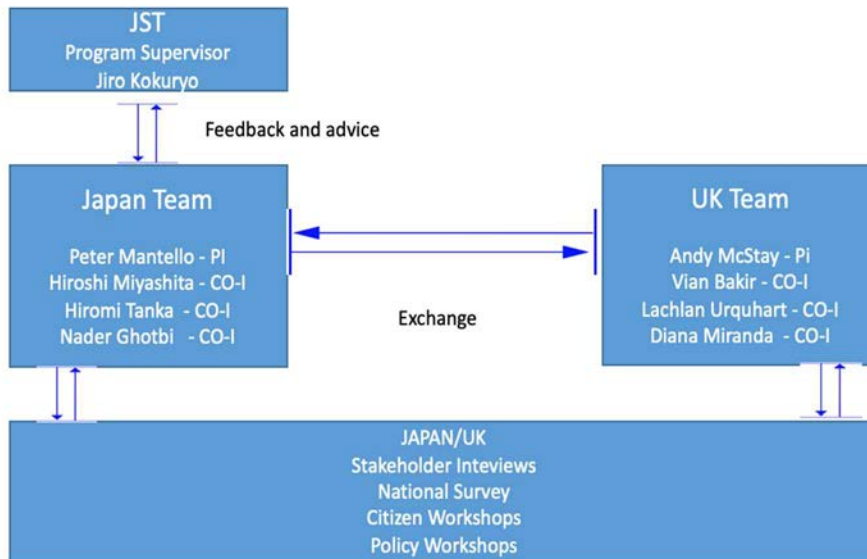
			emotional AI technologies.
Mar 7, 2021	UK/Japan Team Meet	Zoom	Mantello Peter, <i>Preliminary Insights from in-depth interviews on emotional AI's social impacts with the Japanese companies and stakeholders</i>
Apr.14, 2021	Japan Team Meet	Zoom	Discussion of Progress and Actions
May 9., 2021	UK/Japan Team Meet	Zoom	Dr. Vian Bakir discusses her recent works on Emotional AI and civic discourse.

3. Application and Deployment Status of Research and Development Outcomes

4. Research and Development Implementation Framework

Timeline	2020			2021			2022			2023 (3 month extension)	(9 month extension)	
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Stage 1	Literature Review. Map emotional AI											
Stage 2	Collect data: commerce (UK done/ Japan ongoing)											
Stage 3	Collect data: security (UK /Japan ongoing) Collect data: civic discourse/media (UK /Japan ongoing)											
Stage 4	Collect data: governance (UK /Japan ongoing)											
Stage 5				Survey UK & Japan								
Stage 6							Citizen workshops UK & Japan					
Stage 7	Cross-cutting themes for data collection, analysis & dissemination: diversity, age, health, ethics											
Stage 8											Policy Workshop UK & Japan	
Stage 9	Dissemination/ Impact activities incl. setting up think tank											
Advisory Board				Send yr1 report			Send yr2 report			Send final report		

Organization Chart for R&D Implementation



- PI Mantello, APU (expert on dataveillance, predictive policing); currently Japan team management; coordinating with UK team; do empirical work in Japan/international researching EAI pertaining to commercial sector and presently involved in stage 1, 2, 3,).
- Co-I Tanaka, Meiji Univ. (expert on digital media & gender) & Co-I Ghotbi, APU (expert on health, aging, cross-cultural ethics & AI) currently doing empirical work in Japan/international.
- Co-I Miyashita, Chuo Univ. (expert on AI & data privacy) currently doing empirical work in Japan/international.
- RA – Tung Manh Ho (2,320hrs) currently doing archival/indexing and empirical work.

5. Participants in the Research and Development

Name	Phonetic reading (kana)	Affiliated institution	Affiliated department	Post (Status)
Peter Mantello		APU	APS	
Nader Ghotbi		APU	APS	
Hiroshi Miyashita		Chuo University	Policy Studies	
Hiroshi 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.

Date	Name	Location	Number of participants	Summary
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	N/A			
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6-2. Communication with the Public, Outreach Activities, etc.

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

- **Miyashita, H., EU-Japan Mutual Adequacy Decision, in Yumiko Nakanishi & Olivia Tambou (eds.), The EU-Japan Relationship, Open Access Book, 2020.**
- **Emotional AI and Affective Labor – short documentary film May 15,2021**

(2) Establishment and operation of web media

www.ethikal.ai

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

6-3. Paper Publications

(1)Peer reviewed (8 articles)

•Domestic journals (2 articles)

1. **Tanaka, H. Forthcoming/2021. “Gender and Media.” Kadobayashi, Takeshi, and Masuda, Norihiro, eds. Critical Words: Media Theory. Tokyo: Film Art, Inc.**
2. **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**

•International journals (6 articles)

1. **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.**
2. **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).¥**

3. **Quan-Hoang Vuong, Viet-Phuong La, Minh-Hoang Nguyen, Manh-Toan Ho, Manh-Tung Ho and Peter Mantello (2020). "Improving Bayesian Statistics understanding in the age of Big Data with the bayesv R package", Software Impacts, 4. 100016, Elvesier. (Q1)**
4. **Miyashita, H. Human-centric Data Protection Laws and Policies: A Lesson from Japan, Computer Law and Security Review, October 2020.**
5. **Tanaka, H. In press/2021. "The youth's social media use and gender." Information and Communication Studies 2020.**

(2) Non peer-reviewed (0 articles)

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

(1) Invited lectures (Domestic conferences times, International conferences times)

(2) Oral presentations (Domestic conferences times, International conferences times)

(3) Poster presentations (Domestic conferences times, International conferences times)

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

(1) Newspaper coverage / posting (9 times

1. **Miyashita, H. Covid-19 and Data Protection in Japan, Blog droit européen, 31 July 2020.**
2. **Nihon Keizai Shimbun "Digital Surveillance of Corona Evil, Concern sustenance of personal information accumulation" online April 9, 2020**
3. **Mainichi Shimbun "Preparation of new Corona Government Leave Guidelines" April 24, 2020 2nd page**
4. **Yomiuri Shimbun "Hyogo Prefecture Leave Instruction Cross-Border Pachinko Crisis Crisis" May 2, 2020 Page 25**
5. **Mlex, Japan's contact-tracing app for Covid-19 to be operated by health ministry, 11 May 2020**
6. **Asahi Shimbun "Privacy "Anxiety" 73% utilization of big data" May 15, 2020 25**
7. **Asahi Shimbun "Communication data, corona evil stoido individual concerns by local governments" Online May 19, 2020**
8. **Line data scandal alerts Japan of need to get serious about data protection,**

The Japan Times, 22 April 2021

9. Can security be improved by bringing personal data back to Japan?

The Japan Times ,April 22, 2021

6-6. Intellectual Property Applications

(1) Domestic applications (_____ applications)

(2) Applications made abroad (_____ applications)