

Regional Reports on A/IS Ethics

The IEEE Global Initiative benefits from the wisdom of hundreds of thought leaders around the world working in fields related to autonomous and intelligent A/IS systems and ethics from academic, engineering, corporate and policy arenas.

To that end, we asked members from regions beyond North America and the EU to contribute insights on latest development in A/IS Ethics in their parts of the world. The reports below do not include updates from all our regional Members but do provide a number of recent and in-depth insights we wanted to share as part of the release of *Ethically Aligned Design, v2*.

We wish to thank our Members who submitted their thoughts to this report consisting of their informed updates based on their work.

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EADv2 Regional Reports on A/IS Ethics: JAPAN

Written by: Arisa EMA

Assistant Professor, The University of Tokyo
Visiting Researcher, RIKEN AIP Center

Discussions on artificial intelligence and ethics/society are carried out within and between various academic, government, and NPO/Network institutions in Japan. Each organization has its own focus, such as: "AI and professionalism," "AI/robot and law," "AI network system," "Alife," "Deep learning," "Whole brain architecture" and etc. These are the organizations/institutions that lead the discussion on AI Ethics, while many other communities remain active.

Most reports introduced below can be read in English, and the summary is extracted from those reports. Therefore, if the readers of this report want to search for further information, they are welcome to visit the relevant websites and read the original documents.

Academia

The Ethics committee of the Japanese Society for Artificial Intelligence (JSAI)

The committee consists of 9 members and 3 observers, most of which are AI researchers, but the group also includes a Science Fiction writer, a STS researcher, and a journalist. Since its establishment in 2014, the Ethics Committee of the Japanese Society for Artificial Intelligence (JSAI) has been exploring the relationship between artificial intelligence research/technology and society. In February 2017, it released the "Japanese Society for Artificial Intelligence Ethical Guidelines"¹, prioritizing "contribution to humanity (article 1)" as its most important objective.

The Guidelines were firstly created as a Code of Ethics, and as such include professional ethical guidance such as "act with integrity (article 6)" and "communication with society and self-development (article 8)." Above all, article 9, the "abidance of ethics guidelines by AI" emphasizes the reflexive nature of the Guidelines, and reflects its unique characteristics. The Guidelines are not intended to come into practice immediately, but are meant to promote various questions to deepen discussions between researchers and society, and to formulate a conversation that would lead to the efficient use of artificially intelligent technology in society.

¹ The creation and aims of guidelines are introduced in the web in English (<http://ai-elsi.org/archives/514>), and the guideline can be read in English (<http://ai-elsi.org/wp-content/uploads/2017/05/JSAI-Ethical-Guidelines-1.pdf>) and in Korean (<http://ai-elsi.org/wp-content/uploads/2017/09/인공지능학회-윤리지침-20170303-KoNIBP.pdf>).

The ethics committee held an open discussion in June 2017, inviting Danit Gal, chair of the Outreach Committee of The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems.

(“The IEEE Global Initiative”) to participate in the discussion². Video messages from John C. Havens, Executive Director of The IEEE Global Initiative introducing “Ethically Aligned Design version 1”, and Richard Mallah, director of AI Projects at the Future of Life Institute, introducing the “Asilomar AI Principles” were also displayed at the event. The committee confirmed its intention to hold future collaborations with the IEEE and Future of Life Institute. JSAI also now collaborates with AI Initiatives organized by The Future Society and encouraging Japanese people to join the AI Initiative³.

JSAI Ethical Guidelines

1. Contribution to humanity
2. Abidance of laws and regulations
3. Respect for the privacy of others
4. Fairness
5. Security
6. Act with integrity
7. Accountability and social responsibility
8. Communication with society and self-development
9. Abidance of ethics guidelines by AI

RIKEN Center for AIP

The RIKEN Center for Advanced Intelligence Project⁴ was launched in April 2016 under the Ministry of Education, Culture, Sports, Science and Technology, with an operational scope including the “Advanced Integrated Intelligence Platform Project (AIP)”, which focuses on Artificial Intelligence, Big Data, Internet of Things, and Cybersecurity”. The center aims to achieve scientific breakthrough and contribute to the welfare of society and humanity through developing innovative technologies. It also conducts research on ethical, legal and social issues brought about by the spread of AI technology and development of human resources⁵.

² Report (<http://ai-elsi.org/archives/628>) and the summary report (<http://ai-elsi.org/archives/615>) in English available.

³ AI Initiative has Japanese page (<https://assembl-civic.blunove.com/ai-consultation/home>) and the ethics committee opens a special website introducing the director Cyrus Hodes’s message (<http://ai-elsi.org/archives/651>)

⁴ <https://aip.riken.jp/>

⁵ <http://www.riken.jp/en/research/labs/aip/>

With the Center, the Artificial Intelligence in Society Research Group, consisting of 8 teams (Oct 2017), deals with matters such as privacy and social systems, artificial intelligence ethics and society, and information law.

Robot Law study group, The Information Network Law Association

The study group was established in 2016 as a subcommittee of the information Network Law Association, and discusses the legal issues around realizing a society where human beings and robots coexists⁶.

Government

The Conference toward AI Network Society, Institute for Information and Communications Policy (IICP), the Ministry of Internal Affairs and Communications (MIC)

IICP is one of the institutes of the Ministry of Internal Affairs and Communications aimed at promoting basic research activities of information and communications policy. In 2015, IICP released a report titled "Study Group concerning the Vision of the Future Society Brought by Accelerated Advancement of Intelligence in ICT." This study group consists of 12 stakeholders from industry and academia in a wide range of fields. The report discusses: (1) How the changes in human society will alter the relationship between humans and machines as well as the relationship among humans, and hereby what kind of changes will occur in human society? (2) What should humankind do in order to utilize the newly emerging technologies and systems (as precisely defined below, "Intelligent ICT") well now⁷.

In 2016, the "Conference on Networking among AIs" was organized with about 37 participants, mainly consisting of academic researchers in a wide range of fields. The concept of "AI Networking" indicates networking among AI systems. It also generated the concept of "Wisdom Network Society" as a desirable society to be built. The draft of AI R&D Guidelines released as a result of the conference consists of 8 articles. The Final Report was released in 2016 and the draft of Guidelines were presented at G7 ICT Ministers' Meeting in Takamatsu, Kagawa. This led to the formulation of the G7/8 ICT Ministers Meetings' statement in Turin, Italy⁸.

In 2017, the "Conference toward AI Network Society" was organized with about 33 participants. The conference has two subcommittees: the committee on AI R&D Principles (37 people) and the committee on Impact

⁶ <https://www.facebook.com/groups/1553304551547924/>

⁷ English abstract is available

(http://www.soumu.go.jp/main_sosiki/joho_tsusin/eng/pdf/151030_01.pdf) and Japanese website available

(http://www.soumu.go.jp/main_sosiki/kenkyu/intelligent/index.html)

⁸ http://www.soumu.go.jp/main_content/000509692.pdf

and Risk Assessment (34 people)⁹. The members of the conference and subcommittees are from academia, industry, and civil society. They released their report on July 2017, which consisted of the draft of AI R&D guidelines with 9 principles for international discussions. It also includes an impact assessment of AI network society, which is based on case study scenarios of mobility, education, healthcare, etc.

The draft of guidelines aims to protect the interests of users and deter the spread of risks, thus realizing a human-centered “Wisdom Network Society” by way of increasing the benefits and mitigating the risks of AI systems through the sound progress of AI networks. The first principle is the “principle of collaboration”. It concerns the development of AI networking and the promotion of the benefit of AI systems. Principles 2 to 7 mainly deal with the mitigation of risks associated with AI systems such as the “principle of transparency,” “principle of controllability,” and “principle of privacy.” Principles 8 and 9 emphasize improvements in acceptance by users¹⁰. The MIC also held an International Forum toward AI network Society on March 13 and 14, 2017¹¹. As for the next steps, the MIC are considering the creation of a “Utilization Guidelines” draft.

⁹ Referred the list of the report
(http://www.soumu.go.jp/main_content/000507517.pdf)

¹⁰ The English report available (http://www.soumu.go.jp/main_content/000507517.pdf) and whole Japanese report available (http://www.soumu.go.jp/main_sosiki/kenkyu/ai_network/)

¹¹ <http://adnet.nikkei.co.jp/e/event.asp?e=02462>

AI R&D Principles

(Principles mainly concerning the sound development of AI networking and the promotion of the benefits of AI systems)

1) Principle of collaboration—Developers should pay attention to the interconnectivity and interoperability of AI systems.

(Principles mainly concerning the mitigation of risks associated with AI systems)

2) Principle of transparency—Developers should pay attention to the verifiability of inputs/outputs of AI systems and the explainability of their judgments.

3) Principle of controllability—Developers should pay attention to the controllability of AI systems.

4) Principle of safety—Developers should take it into consideration that AI systems will not harm the life, body, or property of users or third parties through actuators or other devices.

5) Principle of security—Developers should pay attention to the security of AI systems.

6) Principle of privacy—Developers should take it into consideration that AI systems will not infringe the privacy of users or third parties.

7) Principle of ethics—Developers should respect human dignity and individual autonomy in R&D of AI systems.

(Principles mainly concerning improvements in acceptance by users et al.)

8) Principle of user assistance—Developers should take it into consideration that AI systems will support users and make it possible to give them opportunities for choice in appropriate manners.

9) Principle of accountability—Developers should make efforts to fulfill their accountability to stakeholders, including AI systems' users.

The Advisory Board on Artificial Intelligence and Human Society, the Cabinet Office

The Japanese government introduced a new concept, “society 5.0,” in its 5th Science and Technology Basic Plan (2016–2020), as a way of guiding and mobilizing action in science, technology, and innovation to achieve a prosperous, sustainable, and inclusive future. This future is within the context of the ever-growing digitalization and connectivity and is empowered by the advancement of AI. On the one hand, AI technologies are expected to bring tremendous benefits to human society.

On the other hand, they raise Ethical, Legal, and Social Implications (ELSI). In May 2016, the Advisory Board on Artificial Intelligence and Human Society was set up under the initiative of the Minister of State for Science and Technology Policy. It was established with the aim of assessing different societal issues that could be raised by the development and deployment of AI, and to discuss its implications for society¹². The advisory board consists of 12 members with various backgrounds in fields such as engineering, philosophy, law, economics, and social sciences. The final report on Artificial Intelligence and Human Society was published on March 24th, 2017¹³. The Advisory Board focused on realistic and significant examples that are current or foreseeable for the near future. The Board’s objective was to clarify what benefits are expected, what issues are to be considered, what issues are to be resolved, and what attitudes are beneficial. Digitalization processes that cannot be dissociated from AI technologies were included in the discussions. Given that AI technologies are being applied in various fields, the Advisory Board took a case-based approach that dealt with various cases in the four representative categories: mobility, manufacturing, personal services, and conversation/communication. The Advisory Board aimed to clarify common key issues around AI technologies in these four categories from 6 points of view: ethical, legal, economic, educational, social, and research and development issues. A matrix was created in which the columns indicated four categories and the rows represented the six points of view¹⁴.

¹² The final report in English is available (http://www8.cao.go.jp/cstp/tyousakai/ai/summary/aisociety_en.pdf).

¹³ Report in Japanese and appendix are available (<http://www8.cao.go.jp/cstp/tyousakai/ai/summary/index.html>)

¹⁴ Matrix for deriving common issues across cases in English is available (<http://www8.cao.go.jp/cstp/tyousakai/ai/summary/matrixfinal.pdf>).

Strategic Council for A/IS Technology

The Council was established with under the instructions issued by the Prime Minister in the “Public-Private Dialogue towards Investment for the Future” in 2016. Their report was published in March 2017¹⁵.

The Council, acting as a control tower, has come to manage five National Research and Development Agencies that fall under the jurisdiction of the Ministry of Internal Affairs and Communications, Ministry of Education, Culture, Sports, Science and Technology, and Ministry of Economy, Trade and Industry. In addition to promoting the research and development of AI technology, the Council coordinates with industries related to the ones that utilize AI (so-called “exit industries”), and is moving forward with the social implementation of AI technology. The Council aims to create R&D development goals and roadmap for industrialization. The roadmap focuses priority areas such as “productivity” “health, medical care, and welfare” and “mobility.” It also emphasizes the importance of coordination with the three research centers:

- 1) Center for Information and Neural Networks (CiNet) and Universal Communication Research Institute (UCRI) of the National Institute of Information and Communications Technology (NICT)
- 2) RIKEN Center for Advanced Intelligence Project (AIP) of the Institute of Physical and Chemical Research (RIKEN)
- 3) Artificial Intelligence Research Center (AIRC) of the National Institute of Advanced Industrial Science and Technology (AIST)

NPO/Network AI and Society

A 2-day Symposium (10-11 October) on AI and society organized by the Next Generation Artificial Intelligence Research Center of the University of Tokyo took place in Tokyo this fall¹⁶. The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems was listed as a partner. The symposium invited speakers from industry and academia to exchange ideas about the practical applications of AI technologies and possible future developments. It aimed to create an opportunity to hold an international discourse on social impacts arising from new AI technologies within Japanese industry and academia¹⁷.

¹⁵ Report in English available (<http://www.nedo.go.jp/content/100865202.pdf>), Japanese website (http://www.nedo.go.jp/activities/ZZJP2_100064.html)

¹⁶ <http://www.ai.u-tokyo.ac.jp/index-e.html>

¹⁷ <http://www.aiandsociety.org/>

On 12th October, the event Beneficial AI Tokyo was held to discuss effective ways to build cooperation for beneficial AI. The conference was organized by The Leverhulme Centre for Future of Intelligence (CFI), The Centre for the Study of Existential Risk (CSER), Next Generation Artificial Intelligence Research Center of the University of Tokyo (AI Center), and Araya, Inc.

ALIFE Lab.

ALIFE Lab. is a platform for accelerating the co-creation between ALife (Artificial Life) scientists and those who are in other "creative" fields such as art, games, design, music, and fashion. Founded on the basis of the Japanese Society for Artificial Intelligence and the International Society for Artificial Life, it aims to establish a community to discuss the future of the society, from anthropocene to AI/ALIFE-pocene¹⁸. The ALIFE Lab. sits on the organizing committee of the 2018 Conference of Artificial Life (ALIFE 2018), alongside the hybrid of the European Conference on Artificial Life (ECAL), and the International Conference on the Synthesis and Simulation of Living Systems (ALife). The conference will be held in Japan¹⁹.

Japan Deep Learning Association (JDLA)

Established in June 2017, the association aims to enhance the competitiveness of the Japanese industry with the help of Deep Learning-based innovative technologies²⁰. By introducing Deep Learning certification systems and guaranteeing that individuals who receive the certificate meet necessary requirements, the Association will contribute to the development of human resources able to apply Deep Learning technologies correctly. It also aims to contribute to other organizations in creating guidelines, considering the ethical aspects of deep learning technologies, and encouraging effective communications with society.

¹⁸ <http://alifelab.org/>

¹⁹ <http://alife2018.alife.cs.is.nagoya-u.ac.jp/>

²⁰ <http://www.jdla.org>

The Whole Brain Architecture Initiative (WBAI)

A nonprofit organization, the Whole Brain Architecture Initiative was established August 2015, with the mission of creating and engineering a human-like artificial general intelligence (AGI) by learning from the architecture of the entire brain²¹. It presents the prospects of the development process²² and supports the development of AGI by open R&D communities contributing to society on a long-term basis²³.

²¹ <https://wba-initiative.org/en/about/greetings/>

²² <https://wba-initiative.org/en/2357/>

²³ <https://wba-initiative.org/en/about/vision/>

EADv2 Regional Reports on A/IS Ethics: Hong Kong

Contributed by: Ron Yu

Board of Governors

International IP Commercialization Council (IIPCC)

Overall, AI development and adoption in Hong Kong is still in its early days, with a small handful of concentrated development centers and a few organizations that have adopted or are developing AI in some form.

Local Development Clusters

Despite the fact that innovation in Hong Kong is overshadowed by its neighbor Shenzhen, there nevertheless is considerable AI and AI-related work going on locally, at least in the Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI)

ASTRI was set up by the Government of the Hong in 2000 with the mission of enhancing Hong Kong's competitiveness in technology-based industries through applied research. Its focus areas: financial technologies, intelligent manufacturing, next generation network, health technologies, and smart cities together with the Hong Kong branch of the Chinese National Engineering Research Centre (CNERC), these form what ASTRI calls its "5+1" R&D strategy.

Rather than focus on AI as a separate area, ASTRI has chosen to incorporate AI in applications in the aforementioned areas. For example, ASTRI has been working to incorporate AI technologies in pattern recognition, robotic vision, etc:

- To aid in the processing of Chinese handwritten forms for the financial and insurance sectors and Chinese voice recognition technology, with both the handwriting and voice recognition technologies optimized for local conditions which not only include issues particular to the Cantonese language but also consider mixing of languages as local Hong Kong residents frequently do (e.g. using both Cantonese and English in their speech)
- For cancer detection

- For defect detection in manufacturing
- In multifactor authentication on mobile devices using a combination of both continuous facial recognition, where the system regularly checks images of the user at different angles and will withdraw access rights if, for example, the user changes - rather than providing access to an application after an initial, straight-on shot of the user, and usage where the system checks input patterns for gestures, input pressure, keystrokes, typing speeds and styles
- For fraud detection in insurance applications
- In custom hardware
- With blockchain for financial applications

Apart from ASTRI, a second AI development cluster can be found in accelerator program Zeroth.ai.

Zeroth.ai's idea is take 20 companies per batch, with Zeroth offering up to \$120,000 in optional funding.

Its initial group of 10 companies were offered each six percent equity in exchange for \$20,000 and featured startups involved in chatbots, deep-learning-powered recognition, social media marketing and crop disease diagnosis.

Zeroth.ai is now working with its second cohort with startups that focus on edge computing, natural language, autonomous vehicles, agritech, human-machine interface technology and ethical computing.

AI companies and AI Adoption

Outside Zeroth.ai and ASTRI, the AI market in Hong Kong is fairly immature.

A few companies offer machine learning, chatbot and expert systems and robotics while a few larger organizations (e.g. HSBC, PriceWatersCoopers) have AI application development teams.

Some local logistics (e.g. Modern Terminals, Hong Kong International Terminals, Hong Kong Air Cargo Terminals Limited) travel and transportation (Hong Kong Civil Aviation Department, Mass Transit Railway, Swire Travel,

Cathay Pacific, Kowloon Motor Bus) and health (Hong Kong Hospital Authority) industries, have been using AI since the 1990s, starting with expert systems for scheduling and personnel rostering.

Yet local adoption of AI remains low despite some interest in the technology (as evidenced by a growing number of groups focused on AI (e.g. The AI Society of Hong Kong)) and related areas and strong participation in AI-related events organized by these groups. While technical expertise in AI and related areas (e.g. big data) is available locally, AI-related knowledge in non-technical sectors, such as law, is more limited.

Yet awareness of local developments in AI remains, overall, low – possibly because of greater local interest in finance, real estate, and retail and a perception that Hong Kong is not truly an innovation center. This is somewhat curious given that some of the world’s leaders in robotics (David Hanson) and Artificial General Intelligence (Ben Goertzel) work in Hong Kong.

The Education sector

In the education sector, leading local universities (The University of Hong Kong, The Chinese University of Hong Kong, City University of Hong Kong, Hong Kong Polytechnic University and Hong Kong University of Science and Technology (HKUST)) all offer courses in AI (some even have or had course offerings in robotics) though these are primarily technical in nature.

While some local universities have also done some limited research on the interaction of human beings with AI and robotics, no courses have been offered in local law or business schools specifically dealing in AI and related matters.

Ethics and AI is similarly absent from local philosophy, policy, technical, liberal arts or legal programs and thus far, has been only touched upon in one or two courses (e.g. in the HKUST Business school).

This is likely due to a combination of both relative lack of expertise in AI and related issues in non-technical faculties and lack of interest among students, who might prefer to study something that is more likely able to help them get a job and, in many cases, are reluctant to enroll in what they perceive to be courses involving technical subject matter due to a lack of a technical or scientific background.

Ethics in the local AI business

Aside from meeting compliance or cybersecurity related requirements, it is not clear what ethical safeguards, if any, other local companies involved in AI are adopting though there are exceptions.

Principals of locally-based Hanson Robotics, have advocated for and adopted a proactive approach to make AI benevolent (as opposed to a 'preventative' approach that seeks to prevent bad outcomes).

Conclusions

While AI adoption and development in Hong Kong might appear somewhat fragmented, and arguably behind developments in Singapore, Korea, or China, Hong Kong is moving ahead and, according to some, not that far behind its Asian rivals.

But in other non-technical areas, Hong Kong has some way to go before it can credibly tackle some of the legal, policy or ethical issues surrounding AI.

EADv2 Regional Reports on A/IS Ethics: "AI in Asian Fintech"

Contributed by: Brian W Tang
Managing Director
Asia Capital Markets Institute (ACMI)

The adoption rate of artificial intelligence (AI) and autonomous systems (AS) in Fintech has been tremendous in Asia over the past 12 months.

On the customer-facing front-end, Japan has rolled out more **humanoid robots** at bank branches, such as Softbank's Pepper at Mizuho Bank[1] and Nao at Bank of Mitsubishi UFG.[2]

Asia is touted as having the "world's most mature deployment of a conversational AI assistant in a bank to date" with DBS digibank - starting in India, it has expanded to Indonesia and Singapore[3] to allow customers to ask for their account balance, transfer funds and make card payments.

Chatbots using natural language processing are now being used for home loans (eg, OCBC Bank's Emma in Singapore;[4] UBank' RoboChat in Australia);[5] personal loans (e.g., RBH Bank in Malaysia);[6] and business and retail loans (e.g., FundsTiger .com's ChatBOT in India).[7] And "**robo-advisors**" are also emerging in asset management (e.g., 8 Securities' Chloe in Japan).[8]

Furthermore, the world's first "smile to pay" **facial recognition payment** system was recently piloted on Alipay by Ant Financial.[9]

On the internal back-end, **RegTech** solutions include Amazon Alexa-like voice bots used by Credit Suisse for compliance queries, [10] and bots at JP Morgan to review commercial loan contracts equivalent to 360,000 hours of work each year by lawyers and loan officers.[11]

AI is being applied to equities trade execution for maximum speed at best price at JPMorgan [12] and post-trade allocation requests at UBS,[13] and to calculate policy payouts at Japan's Fukoku Mutual Life Insurance.[14]

Alternative data is increasingly sought for investment decisions. [15] Led by the mantra "all data is credit data", [16] structured and unstructured "big data" is also being tapped for **AI credit scoring** for lending[17] across Asia from Juan Credit in the Philippines[18] to Singapore-based Lenddo, [19] with China being the global alternative finance leader accounting for 85% of the

total global market in 2016 with US\$243.28 billion raised in mainland China alone.[20]

As part of a pilot for the Chinese government's proposed social credit system, [21] Sesame or Zhima Credit is enabled through Ant Financial's Alipay (with 400 million users) based on five dimensions of information: personal information, payment ability, credit history, social networks and behaviors.[22] Tencent, which owns messaging apps WeChat and QQ with 938 million and 861 million users respectively, also has a pilot with similar categories.[23]

With increasing awareness of black box opacity and possible discrimination relating to AI credit scoring, [24] it should be noted that the People's Bank of China reportedly does not plan to grant any credit-reporting licenses yet due to perceived conflicts of interest and data quality. [25] Establishing "trust with the community" has been acknowledged to be key. [26]

To date, I have contributed a chapter in the forthcoming The RegTech Book on "Forging A Responsibility and Liability Framework in the AI Era For RegTech", [27] and will be moderating the Hong Kong Fintech Week: The Future of AI in Finance panel discussion on "AI Driven RegTech: How Technology is Reforming KYC, AML and Fraud Prevention". [28]

I look forward to furthering global collaborations as part of the IEEE initiative to promote research and awareness in ethical considerations of fairness, accountability and transparency relating to AI and ML especially in Asian Fintech.

[1] "Pepper provides new in-branch services" (Mizuho Bank)

https://www.mizuho.com/mizuho_fintech/news/pepper/index.html

[2] "Innovations at the Mitsubishi UFJ Financial Group and the global FinTech ecosystem" (OpenGov, June 6, 2017)

<http://www.opengovasia.com/articles/7674-exclusive---innovations-at-the-mitsubishi-ufj-financial-group-and-the-global-fintech-ecosystem>

[3] "Kasisto and DBS Bank to Unveil Case Study at Digital Banking Conference" (Press release, June 8, 2017): <http://kasisto.com/kasisto-and-dbs-bank-to-unveil-case-study-at-digital-banking-conference/>; "Chatbots to humans: Move aside, I got this" (American Banker , June 19, 2017):

<https://www.americanbanker.com/news/chatbots-to-humans-move-aside-i-got-this>

[4] "OCBC Bank Launches First A.I. Powered Home Renovation Loan Specialist Chat Bot" (Fintech New Singapore, April 5, 2017):

<http://fintechnews.sg/9378/personalfinance/cbc-bank-launches-first-powered-home-renovation-loan-specialist-chat-bot/>

[5] "UBank launches Australia's first artificial intelligence chatbot for Home Loans" (Finder, May 15, 2017): <https://www.finder.com.au/ubank-launches-australias-first-artificial-intelligence-chatbot-for-home-loans>

[6] "RHB Bank rolls out chatbot for loan applications" (Computer Weekly, September 28, 2017):

<http://www.computerweekly.com/news/450427104/RHB-Bank-rolls-out-chatbot-for-loan-applications>

[7] "FundsTiger.com Launches First 'Loan ChatBOT' in India for Business and Retail Loans" (PR Newswire, January 18, 2017):

<https://www.telegraphindia.com/pressrelease/prnw/51549/fundstiger-com-launches-first-loan-chatbot-in-india-for-busi.html>

[8] "8 Securities Launches Robo-Advisor Chloe in Japan" (Finance Magnates, February 17, 2017):

<https://www.financemagnates.com/fintech/news/8-securities-launches-robo-advisor-chloe-japan/> ; "Robo-advisors permeate Asian

markets" (LeapRate, April 6, 2017):

<https://www.leaprate.com/forex/technology/robo-advisors-permeate-asian-markets/>

[9] "Alipay rolls out world's first 'Smile to Pay' facial recognition system at KFC outlet in Hangzhou" (South China Morning Post, September 1, 2017):

<http://www.scmp.com/tech/start-ups/article/2109321/alipay-rolls-out-worlds-first-smile-pay-facial-recognition-system-kfc>

[10] "Credit Suisse has deployed 20 robots within bank, markets CEO says" (Reuters, May 2, 2017): <https://www.reuters.com/article/us-milken-conference-creditsuisse/credit-suisse-has-deployed-20-robots-within-bank-markets-ceo-says-idUSKBN17X2JC>

[11] "JPMorgan Software Does in Seconds What Took Lawyers 360,000 Hours" (Bloomberg, February 28, 2017):

<https://www.bloomberg.com/news/articles/2017-02-28/jpmorgan-marshals-an-army-of-developers-to-automate-high-finance>

[12] "JPMorgan develops robot to execute trades" (Financial Times, July 31, 2017): <https://www.ft.com/content/16b8ffb6-7161-11e7-aca6-c6bd07df1a3c?mhq5j=e6>

[13] "Robots enter investment banks' trading floors" (Financial Times, July 6, 2017): <https://www.ft.com/content/da7e3ec2-6246-11e7-8814-0ac7eb84e5f1?mhq5j=e6>

[14] "This Japanese Company Is Replacing Its Staff With Artificial Intelligence"(Fortune, January 6, 2017):
<http://fortune.com/2017/01/06/japan-artificial-intelligence-insurance-company/>

[15]"AI and Alternative Data: A Burgeoning Arms Race" (June 20, 2017):
<https://www.watertechnology.com/trading-technologies-and-strategies/3389631/ai-and-alternative-data-a-burgeoning-arms-race>

[16] See M. Hurley and J. Adebayo,"Credit Scoring In the Era of Big Data" Yale Journal of Law and Technology (Vol 18, I):
<http://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=1122&context=yjolt>

[17] "The Rise of Alternative Data in the Lending Market" (Bank Innovation, September 21, 2017): "<https://bankinnovation.net/2017/09/the-rise-of-alternative-data-in-the-lending-market/>

[18] "Meet Juan Credit, the first credit scoring system for the unbanked in the Philippines" (e27, March 16, 2017): <https://e27.co/juancredit-credit-scoring-system-unbanked-167965-2/>

[19] "This startup uses battery life to determine credit scores" (CNN, August 26, 2016): <http://money.cnn.com/2016/08/24/technology/lenddo-smartphone-battery-loan/index.html>

[20] "Cultivating Growth - 2nd Asia Pacific Region Alternative Finance Industry Report (Cambridge University Alternative Finance Centre, September 19, 2017): <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/cultivating-growth/#.Wdv4dmiCzIU>

[21] "China's Social Credit System: AI-driven panopticon or fragmented foundation for a sincerity culture?" (Technode, August 23, 2017): <http://technode.com/2017/08/23/chinas-social-credit-system-ai-driven-panopticon-or-fragmented-foundation-for-a-sincerity-culture/> ; "China's Social Credit System" (Mercator Institute for China Studies, May 24, 2017): https://www.merics.org/fileadmin/user_upload/downloads/China-Monitor/merics_ChinaMonitor_39_englisch_Web.pdf

[22] "FICO with Chinese characteristics: Nice rewards, but punishing penalties" (CNBC, March 17, 2017):

<https://www.cnbc.com/2017/03/16/china-social-credit-system-ant-financials-sesame-credit-and-others-give-scores-that-go-beyond-fico.html>

[23] "The Score On Tencent's Credit Scoring" (PYMNTS, August 15, 2017):

<https://www.pymnts.com/news/alternative-financial-services/2017/tencent-takes-on-alibaba-in-credit-scoring/>

[24] "Did Artificial Intelligence Deny You Credit?" (Fortune, May 19, 2017):

<http://fortune.com/2017/03/19/artificial-intelligence-credit/> ; How Algorithms Can Bring Down Minorities' Credit Scores" (The Atlantic, December 2, 2016):

<https://www.theatlantic.com/technology/archive/2016/12/how-algorithms-can-bring-down-minorities-credit-scores/509333/>

[25] "China Gives Little Credit to Companies Handpicked to Develop Credit-Reporting Sector" (Caixin, May 15, 2017):

<http://www.caixinglobal.com/2017-05-15/101089851.html>

[26] "Joe Tsai: AI a Vital Problem-Solving Tool for Tech Companies" (Alizila, September 17, 2017): <http://www.alizila.com/ai-vital-problem-solving-tool/>

[27] The REGTECH Book (Wiley, forthcoming 2018):

<http://as.wiley.com/WileyCDA/WileyTitle/productCd-1119362148.html>

[28] Hong Kong Fintech Week 2017 Agenda:

<http://www.finnovasia.com/#agenda>

EADv2 Regional Reports on A/IS Ethics: Russian Working Group Insights

Contributed by: Pavel Gotovtsev

Ph.D, Associate Professor, Vice-head of Biotechnology and Bioenergy department at National Research Centre, "Kurchatov Institute"

The Ethical challenges related with AI development and application became one of the most significant for modern society. AI today became the engine of progress in different aspects of the human being, from economy, municipal systems, transport to scientific researches and medicine. AI makes our lives easier, our doings more effective, our knowledge greater. But AI also influences our lives by using our data, interacting with us in everyday life and making decisions that concern us.

Due to those reasons, we postulate that the *Ethically Aligned Design* document is a significant step to make research and development in the AI field more closely aligned to the positive ethics of humanity. We suppose that further researchers will be substantially influenced by this document. Also we believe that as scientific fields AI Ethical studies have perspectives to become some of the most attractive for the many researchers all-over the World.

From the point of view of the Russian Working Group (RWG) the further development of AI Ethics it is also necessary to turn attention on the following research fields:

- AI is an extremely fast developing field for both fundamental and applied applications. It can lead to arising of new multidisciplinary technologies and applications that can in its turn lead to the new ethical and moral challenges.
- The design of any regulation documents for Ethical AI should be based on principles of progress enhancement not on the progress limitations. Any regulations should be carefully investigated by experts all over the world. Economy and political impact of ethical AI development regulations should be considered.

- Mathematical formalization of ethical standards and norms should also be considered, along with how to implement those standards into computational systems. Including, mathematical basis, ontologies, machine learning applications etc. It is in these stages of design that the ethical behavior of AI system as a decision-making system both in real world (for ex. automatic cars) and in virtual (metadata analysis related with human's personal data) begin. Verification of systems responsible for ethical decisions of AI should also receive high attention.

By opinion of RWG members these tasks are the most challenging in today's AI ethics research. This list is not full and will be added in future during technologies development. We can expect new ethical and moral questions that should be answered in future. On this evidence researchers in the field of AI ethics will follow with all AI researchers.

EADv2 Regional Reports on A/IS Ethics: Israel

Contributed by: Ariella Berger

AI Open Ethics Source

Introduction

Arguably one of Israel's most well-known authors about the future of technology and humankind is Prof. Yuval Noah Harari, renowned author of *Sapiens* (2011) and *Homo Deus* (2015).

Harari, a history lecturer at the Hebrew University of Jerusalem, is firmly in the humanities camp.

Yet what Israel is most renowned for its academic technical centers of excellence (such as the Technion, Weizmann Institute and Hebrew University of Jerusalem amongst others) and support for research and development- Israel spends more per GDP compared to any other developed country.

Israel has well-known AI successes - mature start-ups with notable exits, such as Face.com, Waze and Mobileye. Today, according to [Daniel Singer](#), around 430 Israeli start-ups use AI technology as their core. Of note in the innovation scene is the Smart Mobility ecosystem, given a great boost by the 2011 government decision to promote Israel as a global hub of mobility technologies, particularly the Fuel Choices and Smart Mobility Initiative, Ecomotion mobility incubator and Capsula studio.

When it comes to AI and ethics, there are several players.

The following should be considered an incomplete summary of efforts relating to IEEE Ethically Aligned Design. It is likely that, as AI and awareness of AI ethical issues grows, a hub will naturally evolve, ground-up and top-down.

The Jerusalem Centre for Ethics

The Jerusalem Centre for Ethics is a well-established center of excellence. Its goal is to increase awareness of the importance of ethics in all areas of life, especially professional organizations, by galvanizing and implementing ethics codes practically.

- The Centre operates with leading experts in ethics from different fields with an Academic Steering Committee composed of renowned public and professional figures.
- Activities cover society including the public sector, the business sector, social organizations, boards of directors and all levels of management and professional organizations.
- The Centre deals only with ethics and in all its disciplines and holds many and varied professional discussions and activities, some for groups from the public, security, business and professional sectors, and some that are open to the public.

The Haifa Center for Law and Technology

The Haifa Center for Law and Technology (HCLT), hosted by the Faculty of Law at the University of Haifa, is a renowned interdisciplinary research institute and the first and only center in Israel dedicated to the study of the interconnection between law and technology.

- Central goals include- the promotion of research activities in Law, Technology and Intellectual Property and dialogue between academics, innovators, policymakers and businesses, to establish the scientific foundation for legislation to address new technologies.
- The Center conducts workshops and conferences, and promotes research activities, involving faculty and students, judges, lawyers, jurists, decision makers and the general public.
- The Center has established a world-wide reputation in its field and enjoys a wide network of international collaborators.

The Zvi Meitar Institute (IDC)

The Zvi Meitar Institute for Legal Implications of Emerging Technologies is situated at the Radzyner Law School at the Interdisciplinary Center (IDC) in Herzliya.

- The Institute is broadly interested in the ethical, economic, social and legal implications of new and emerging technologies, particularly disruptive.
- The Institute intends to publish and present scholarly papers, books and textbooks and collaborate with similar-minded institutions locally and globally.
- The Institute is positioned to contribute to policy deliverables, the public debate and pedagogically, engaging students and researchers with individual and large-scale projects and events with local and international experts.

- The Emerging Technologies Program aims to examine the legal, ethical and social challenges of new and disruptive technologies, empowering undergraduates to actively contribute and ultimately influence academic scholarship, policy and even drafting laws and regulations.

Tel Aviv University

The Edmond J. Safra Center for Ethics is focused on a five-year in-depth study of a specific, interdisciplinary theme, within the broad world of ethics and its relevance to various aspects of human society.

The research theme chosen for 2017-2022 is "Markets, Ethics, and the Law."

- The legal aspect is critical to the study and to the development of ethical norms, hence the natural link between the Center and Buchmann Faculty of Law at Tel Aviv University.
- The Center brings together faculty members from a variety of disciplines across the university, such as law, philosophy, sociology, history, political science, economics and business administration.
- The Affiliated Faculty is joined each year by Visiting Faculty, comprising leading researches from around the world who bring with them different perspectives and fresh insights.

At Tel Aviv University is Philosophy Professor Asa Kasher, who also serves as Vice Chair at the Jerusalem Centre for Ethics. His research covers a broad range of topics in philosophy and ethics, including military and medical ethics.

Also

- At the university of Ben Gurion Department of Management, Dr Yotam Lurie at the Guilford Galzer Faculty of Business and Management has expertise in Ethics, Applied Philosophy and currently runs related courses.
- Bar Ilan University has a Graduate Program in Science, Technology and Society which covering many disciplines (history, philosophy, sociology, anthropology, education, psychology, economics, critical theory). There is no core AI Ethics focus, as yet.

AI Ethics Open Source (umbrella effort, ground-up)

[AI Ethics Open Source](#) was formed in 2017, to make the humanities, thinkers and spiritual traditions discoverable and usable for governments, corporations and other stakeholders grappling with AI Ethics issues, by mapping local -global Norms and Values. Activities assist partners to further their AI Ethics research, retaining full ownership of and promoting identity to their ideas.

- Using [Ment](#), an AI powered SaS knowledge management platform, an AI Ethics debate is opened, moderated and captured, with AI Ethics experts.
- The platform structures and streamlines discussion around hypotheses in AI and ethics.
- Deliverables are given to stakeholders, ultimately identifying norms and values in AI Ethics in a scalable and dynamic manner.

The upcoming project relates to AI and education. It addresses Israeli teachers' primary concerns -privacy, personalization, and technological unemployment. The project is in partnership with the [Israel Innovation Institute \[Ed.il\]](#) at the [Israel Institute of Innovation](#), Israel's hub for 165 AI education startups and expert thinkers under the umbrella.