

Journalism	Number of units	:	3 units (3,2,1)
<i>4th School Core</i>	Prerequisite	:	Nil
	Level	:	Year II/Semester 1 or 2 <i>OR</i> Year III/Semester 2
COMM2027	Duration	:	39 hours

Objectives for AI and Digital Communication

This course aims to introduce students to the theory, practice and techniques of artificial intelligence (AI) and its applications to the media and communication industries. Students are expected to understand the basic principles of AI and how it is changing the media and the communication process. The AI applications that students will study include data-driven digital marketing, toys and gaming, AI and multimedia production, automatic customer service, computational news production, machine learning, recommender systems and search engines.

Students will also explore such issues as fake news, algorithm-confounded audience polarization, privacy protection, surveillance society, dampening of news professionalism and widening digital divides. By reflecting on these controversial issues, students are expected to develop an interdisciplinary and critical perspective that helps them make sense of AI's social, cultural, and political implications in both global and local contexts.

Course Content

- 1 Overview: AI and digital media
 - 1.1 The history of AI
 - 1.2 The history of digital media
 - 1.3 The current landscape and prospects of AI and digital media
- 2 The technological fundamentals of AI
 - 2.1 Search engines
 - 2.2 Recommender systems
 - 2.3 Data mining
- 3 Machine learning and deep learning
 - 3.1 Supervised learning
 - 3.2 Unsupervised learning
 - 3.3 Deep learning and artificial neural networks
 - 3.31 Introduction to Deep Learning frameworks (e.g. TensorFlow)
 - 3.32 Selected topics in deep learning (e.g. image processing, NLP)

- 4 The applications of AI in media and communication context
 - 4.1 AI and multimedia production
 - 4.2 AI and publishing and writing
 - 4.3 AI-empowered information verification and fact-checking
 - 4.4 Algorithmic advertising and targeted marketing
 - 4.5 AI and animation
 - 4.6 Toys and gaming
 - 4.7 E-health and health promotional campaign
 - 4.8 AI and customer service
 - 4.9 Case studies: Ready-made AI Tools for Dummies (e.g. Orange, Weka, etc.)

- 5 Critical reflections: Ethics, literacy, culture and regulations
 - 5.1 Algorithm-confounded polarization and filter bubbles
 - 5.2 Ethics and professionalism
 - 5.3 Privacy protection
 - 5.4 Fake news, misinformation, disinformation
 - 5.5 The algorithmic discrimination
 - 5.6 Regulations and law

Course Intended Learning Outcomes (CILOs)

CILO	By the end of the course, students should be able to:
CILO 1	Explain the various basic artificial intelligence techniques;
CILO 2	Describe global and local cases involving the application of AI in digital communication;
CILO 3	Critically evaluate the social, cultural, and political implications of AI-involved media and communication products;
CILO 4	Provide solutions to solve the controversies and problems in AI and digital communication.

Teaching & Learning Activities (TLAs)

CILOs	TLAs
CILOs 1, 2	Students will learn the concepts and techniques via lectures, in-class discussions, quizzes, and assignments.

CILOs 3, 4	Students will apply the knowledge and provide solutions to real-world problems via group projects.
------------	--

Assessment Methods (AMs)

Type of Assessment	Weighting	CILOs to be addressed	Description of Assessment Tasks
Continuous assessment	20%	1, 2	Continuous assessments include class attendance, individual assignments, and quizzes, which are designed to measure how well the students have mastered the concepts, themes, and cases in algorithmic culture.
Group project	40%	3, 4	In the group project, students will focus on one application of AI, and compile a report on how AI is changing people's ways of life via first-hand research. The students are expected to focus on the technical possibilities of the AI application, as well as how it affects the local society, and discuss any other controversial issues involved.
Final examination	40%	1 - 3	The final examination aims to test students' understanding of several key fundamental concepts of AI and digital communication. The examination will include a case study and an essay question. Students will provide analysis and elaboration on the issues involved.

Textbooks / Recommended Readings

Selected references on AI technologies

- Buduma, N., & Locascio, N. (2017). *Fundamentals of deep learning: Designing next-generation machine intelligence algorithms*. O'Reilly Media, Inc.
- Negnevitsky, M. (2005). *Artificial intelligence: A guide to intelligent systems*.

Pearson Education.

Russell, S. J., & Norvig, P. (2016). *Artificial intelligence: A modern approach*. Malaysia: Pearson Education Limited.

Selected references on digital communication

- AE, A. E., Schouten, K., & Klijn, E. H. (2018). Framing a conflict! How media report on earthquake risks caused by gas drilling: A longitudinal analysis using machine learning techniques of media reporting on gas drilling from 1990 to 2015. *Journalism Studies*, 1-21. doi: 10.1080/1461670X.2017.1418672
- Cole-Lewis, H., Varghese, A., Sanders, A., Schwarz, M., Pugatch, J., & Augustson, E. (2015). Assessing electronic cigarette-related tweets for sentiment and content using supervised machine learning. *Journal of Medical Internet Research*, 17(8). E208. doi: 10.2196/jmir.4392
- Garg, N., Schiebinger, L., Jurafsky, D., & Zou, J. (2018). Word embeddings quantify 100 years of gender and ethnic stereotypes. *Proceedings of the National Academy of Sciences*, 115(16), E3635-E3644.
- Lazer, D., Pentland, A. S., Adamic, L., Aral, S., Barabasi, A. L., Brewer, D., ... & Jebara, T. (2009). Life in the network: The coming age of computational social science. *Science (New York, NY)*, 323(5915), 721.
- Shah, D. V., Cappella, J. N., & Neuman, W. R. (2015). Big data, digital media, and computational social science: Possibilities and perils. *The ANNALS of the American Academy of Political and Social Science*, 659(1), 6-13.

Selected reading on Artificial Intelligence

Russell, Stuart J. (2019). Human Compatible: Artificial Intelligence and the Problem of Control.

Copyright Notice and Privacy Disclaimer

All lectures and course materials of this course, including but not limited to PowerPoint presentations, materials, texts, images, diagrams, tables, drawings, notes, video and audio recordings, syllabi, and assignments ("Course Materials"), are protected under the Copyright Ordinance (Cap. 528) of the Hong Kong SAR and similar law in force from time to time throughout the world as well as by the policy of Hong Kong Baptist University ("HKBU"). The copyright of the Course Materials and any other materials that the individual course instructors create belong to the respective individual course instructors.

The Course Materials may include video or audio recordings of the classes. Students who are enrolled in this course may be recorded during class. The recordings do not seek to collect students' personal data but to the extent that any personal data are

obtained, they shall be used in accordance with the confirmation provided when students enrolled at HKBU “for different academic and administrative purposes which are in relation to my study at the University.” Such recordings are made for purposes of teaching and learning and may be made available to students and to staff members of HKBU strictly for such purposes.

Students enrolled in this course may take notes and make copies of the Course Materials for their own learning purposes. No one may share, reproduce, distribute or display (whether by way of posting, file-sharing, uploading, downloading or otherwise) the Course Materials or any part thereof in any other way without the explicit written consent of the course instructor. No one also may allow others to do so. Any unauthorized use of the Course Materials may result in HKBU disciplinary actions as well as criminal and civil liabilities against the students and staff members concerned.”