



## Use of AI in North Korea: Strategic Perspectives on AI's Potential Role

Seunghee HA (Dongguk University)

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As artificial intelligence (AI) technology advances rapidly in the era of the Fourth Industrial Revolution, predictions and prospects for the technology-driven future are capturing global attention. AI, first coined by John McCarthy at the 1956 Dartmouth Conference in the United States, is defined as ‘an algorithm that enables a computer to autonomously recognize, reason, and make decisions by mimicking the way the human brain processes information by identifying patterns in vast amounts of data’ (Lee 2021: 2). In North Korea, AI development trends are also emerging, with a focus on modernization, informatization, and scientification. Official North Korean documents reveal an interest in applying AI within the international community and monitoring technological developments abroad.

In North Korea, AI is defined as “the intelligence of machines that replace human intellectual functions or the academic field that studies this. It aims to study machines that replace parts of human intellectual functions, acknowledging that current computers cannot fully replace human intellectual functions” (*Social Science Publishing House* 2017). AI is seen as a means to enhance living standards (*Rodong Sinmun* 2018). The term first appeared in *Rodong Sinmun* in 1982 in an article about unmanned robots, emphasizing comprehensive automation in industry for economic modernization. Robots were described as “automatic machines that recognize the external environment, make purposeful decisions, move accurately as needed, and perform various functions organically.”

Major institutions related to AI in North Korea include the Artificial Intelligence Research Institute under the General Bureau of the Information Industry Guidance, the Korea Computer Center (KCC), the High-Technology Development Center of Kim Il Sung University, Kim Chaek University of Technology, and Pyongyang University of Science and Technology. These institutions engage in AI research across various fields, including pattern recognition, natural language processing,

recommendation systems, and AI robots. Notable projects include voice recognition programs like “*Wiinui palkolumul ttaraso (Following the Footsteps of a Great Man)*,” the grading program “*Kyongjaeng 1.0 (Competition 1.0)*,” the optical character recognition program “*Sori yonpil (Sound Pencil)*,” the facial recognition system “*Nunpit (Gaze)*,” and Go programs “*KCC Patuk (KCC Go)*” and “*Unbyol (Silver Star)*.” In natural language processing, projects include the Korean speech synthesis program “*Chongsong 1.0*,” the translation service “*Ryongma*,” and the chatbot “*Pangjoja 1.0 (Helper 1.0)*.”

Regarding AI robots, it is explained that “gradual changes are occurring in the appearance of robots. The industrial robots currently in use generally have the shape of one arm of a person. However, in the future, as cooperative movements of two arms are realized and versatile robots possessing the five sensory functions of humans such as vision, hearing, and touch are developed, they will gradually take on a human-like appearance” (Ro 1989). North Korea’s AI efforts largely focus on education and security, anticipating robots evolving into androids that mimic human behavior and appearance.

Based on North Korea’s AI technology development direction, the following predictions can be made. First is the potential use of generative AI based on controlled learning data. If AI generates creative works, it may be difficult for North Korean authorities to establish a controlled environment, as unpredictable results might emerge. On the other hand, AI that assists in creating artwork could enhance quality and efficiency, potentially serving as an auxiliary tool for artists. However, for generative AI to be acceptable to North Korean authorities, it must maximize the efficiency of artistic creation under controllable conditions and produce ideologically aligned results. Learning data and conditions are expected to be strictly limited to maintain a fixed format, and works created by AI will not be given the same value as those created by humans.

Another prospect is the development of virtual humans and their potential attribution of personhood. In the entertainment industry, virtual humans are rapidly gaining popularity, forming fan bases and often replacing human figures. However, in North Korea, virtual humans are unlikely to achieve a status or value higher than that of humans. North Korean doctrine emphasizes that artists should contribute to the country’s artistic development and serve the people and the revolutionary cause, rather than seek personal honor and popularity. While virtual humans could be used to enhance efficiency and productivity if technical issues are resolved, they are unlikely to replace human roles and values or exist as independent entities in North Korea.

The third prospect is the variability of fixed technological development. North Korea emphasizes developing technology suited to its own conditions and insists that even scientific imagination must be based on reality, termed the “Korean style fantasy” (Ri 2023). In this context, scientific imagination is deemed essential but must align with North Korean realities. They explain, “Those who study science and technology could also have scientific fiction,” and “we can’t even picture the future of science and can’t develop science itself without scientific fiction, imagination based on the reality.” This approach aims to “develop everything on this land for the benefit of the Korean revolution and people” in a way that fits the interests of the Chosun revolution and people. This concept is illustrated through an anecdote involving Kim Jong Il and a student from the Department of Geology at Kim Chaek University of Technology on September 16, 1961 (Ri 2023).

While emphasizing the importance of imagination in scientific inquiry, it demands an appropriate attitude defined by “self-reliant scientific inquiry” and stresses maintaining this stance. This indicates that North Korea adheres to specific standards permissible within socialism in developing science and technology.

Recently, North Korea has been attempting to utilize AI to a level that replaces human intelligence. However, due to its human-centered ideology, AI is unlikely to be recognized as a persona and must function as an auxiliary to humans. AI-created works may not be granted authorship status and will likely be considered mere tools. The uncanny valley hypothesis suggests that as robots become more human-like, they cause psychological discomfort. Therefore, strict distinctions between AI and humans in North Korea could lead to limitations on developing android robots.

North Korean authorities are also concerned about the potential consequences of revolutionary changes brought about by AI technology. They worry about situations where AI surpasses human capabilities, leading to a loss of human control. Security concerns also arise with AI’s introduction into military applications and the unpredictable threats when combined with weapons (*Minju Choson* 2018; 2019). Additionally, North Korea acknowledges the importance of copyright, which has previously been overlooked.

It is crucial to address the societal and cultural issues that AI-driven future environments might bring and to prepare strategic measures. Currently, North Korean AI technologies focus on collecting personal physical information. Although virtual humans and generative AI have not yet been implemented, North Korea’s recent interest in AI could lead to rapid changes. Despite being underestimated due to marginalization, outdated infrastructure, and limited resources, North Korea can easily access international information. This access, combined with the rapid absorption of open international data, could accelerate its AI technology growth and potentially increase security threats to the international community.

These behaviors of accessing and utilizing information could directly impact international security. Multiple strategies for AI use in North Korea must be considered. Although generative AI like ChatGPT is not yet present, it could be used for psychological warfare and spreading disinformation. North Korea already uses new media to incite conflicts in South Korea by criticizing the government and social issues. The future use of deepfake technology for distributing fake news is also possible. With South Korea blocking North Korean broadcasts and internet sites, the information gap between domestic and international communities may widen, potentially leading to security gaps.

Proactive measures are urgently needed based on various predictive scenarios regarding the impact of AI on North Korea. It is time to discuss AI technology’s approach and utilization in security, monitor North Korea’s AI development trends, and consider the potential issues when North Korea applies AI technology domestically and internationally.

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■ **Seunghye HA** is a research professor of the Institute of North Korean Studies at Dongguk University.

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Typeset by: Jisoo Park

For inquiries:  
Jisoo Park, Research Associate

Tel. 82 2 2277 1683 (ext. 208) [jspark@eai.or.kr](mailto:jspark@eai.or.kr)

The East Asia Institute  
Sajik-dong 261, Jongro-gu,  
Seoul 03028, South Korea  
Phone 82 2 2277 1683 Fax 82 2 2277 1697  
Email [eai@eai.or.kr](mailto:eai@eai.or.kr) Website [www.eai.or.kr](http://www.eai.or.kr)