UDS 004

ANALYSIS OF THE CURRENT APPLICATION STATUS OF ARTIFICIAL INTELLIGENCE IN CHINA

Lvxintong, Counselor of the School of Artificial Intelligence scientific degree: Master of Arts degree the abbreviated name of the organization: Suzhou Jianxiong Vocational and Technical College
（Taicang City, Jiangsu Province, China）
Scientific supervisor - Buinaya Elena Vasilievna, Associate Professor of the PIT Department, Candidate of Economics
(T.F. Gorbachev Kuzbass State Technical University, Kemerovo)

1. Introduction

1.1. Research Background. In China, the development of artificial intelligence (AI) is closely aligned with national strategy. The implementation of the New Generation Artificial Intelligence Development Plan has elevated AI to a national strategic priority, with the goal of establishing China as a global leader in AI innovation. This policy has not only accelerated technological advancements but also provided robust support for AI applications.

Benefiting from technological progress and policy incentives, China's AI sector has entered a phase of rapid development. Numerous enterprises and research institutions are driving its adoption across various industries. In healthcare, AI enhances diagnostic accuracy and efficiency, aids in drug development, and improves patient management. In education, intelligent teaching systems and personalized learning platforms enable more efficient and tailored knowledge delivery. In transportation, autonomous driving technologies and intelligent traffic management systems optimize efficiency and reduce accident rates. In smart homes, AI-powered voice assistants and automation devices enhance convenience.

Additionally, China emphasizes the practical and societal benefits of AI, leveraging big data to support smart city initiatives and improve public service efficiency. However, challenges such as data security, privacy protection, and ethical concerns must be addressed through improved regulations and ethical frameworks to ensure sustainable development.

1.2. Research Objectives. This study aims to analyze the current application status of AI in China, focusing on key sectors such as healthcare, education, transportation, finance, and manufacturing. It evaluates the maturity of AI technologies, identifies major challenges (e.g., data security and privacy issues), and proposes potential solutions. Furthermore, the study forecasts future trends in AI development, including technological innovation, talent cultivation, and industry standards, while highlighting its significance for economic growth and social progress.

1.3. Research Significance. This study examines the innovation dynamics of

emerging AI enterprises through data analysis and case studies, revealing both challenges and opportunities in technological advancement. Academically, it enriches the theoretical framework of AI innovation and provides new perspectives for future research. Practically, the findings offer valuable insights for policymakers and businesses. Governments can use this research to design targeted support policies, such as tax incentives, funding programs, and talent development initiatives, to foster innovation in AI enterprises. Businesses, on the other hand, can optimize their innovation processes, accelerate product commercialization, and enhance competitiveness based on the study's recommendations.

2. Current Applications of AI in China.

2.1. Service Industry. AI is transforming the service sector, particularly in data-intensive industries such as retail, finance, and healthcare, significantly improving efficiency and service quality.

- Retail: AI is widely used in inventory management, customer service, and personalized recommendations. Intelligent forecasting helps retailers optimize stock levels, reducing overstock and shortages, while automated quality control ensures product standards. By analyzing customer purchase histories and preferences, AI enables personalized recommendations, enhancing shopping experiences.

- Finance: AI applications include intelligent customer service, risk management, and fraud detection. Natural language processing (NLP) allows AI-driven customer service to respond swiftly and accurately to inquiries. In risk management, big data analytics predict loan default risks, aiding financial institutions in policy formulation. AI also identifies and prevents fraudulent activities, safeguarding customer assets.

- Healthcare: AI assists in disease diagnosis, personalized treatment planning, and patient management. Deep learning and image recognition technologies improve diagnostic precision, particularly in medical imaging. AI analyzes vast medical datasets to recommend tailored treatment plans and streamline hospital operations.

2.2. Manufacturing. AI is revolutionizing industrial manufacturing by enhancing production efficiency and enabling smart automation.

- Smart Manufacturing: AI integrates machine vision, automation, and big data analytics to enable real-time monitoring and quality control. For example, AI systems detect defective products on production lines, ensuring higher quality and efficiency. Predictive maintenance, powered by AI, reduces downtime and maintenance costs.

- Industrial Automation: AI optimizes production scheduling and resource allocation. Machine learning algorithms improve production planning, while deep learning refines robotic trajectory planning, increasing flexibility and adaptability.

Challenges:

- Technical Integration: Diverse industrial systems and standards complicate AI adoption.

- Reliability and Security: The "black box" nature of AI decision-making

poses risks to production safety.

- Talent Shortage: A lack of skilled AI professionals hinders deeper implementation.

2.3. Transportation. AI is advancing rapidly in intelligent transportation and autonomous driving.

- Autonomous Vehicles: AI enhances environmental perception (e.g., pedestrian and vehicle detection), decision-making (e.g., route planning in complex scenarios), and control (e.g., improving safety and fuel efficiency).

- Smart Traffic Systems: AI leverages big data and cloud computing to optimize traffic flow, predict travel patterns, and reduce congestion. The rollout of 5G and vehicle-to-everything (V2X) technologies will further enhance system reliability and real-time responsiveness.

2.4. Education. AI is reshaping education through personalized and intelligent learning solutions.

- Online Education: AI-driven recommendation systems tailor learning resources to individual student needs, improving engagement and outcomes. Real-time performance monitoring helps educators adjust teaching strategies.

- Personalized Learning: Machine learning analyzes student data to create customized learning paths, shifting teachers' roles from knowledge providers to mentors.

Challenges:

- Uneven technology adoption exacerbates educational inequality.
- Limited empirical research restricts AI's potential in education.
- Data privacy concerns require urgent attention.

2.5. Other Sectors. AI is making strides in agriculture, environmental protection, and urban management.

- Agriculture: Precision farming technologies, such as remote sensing and smart irrigation, boost crop yields and resource efficiency.

- Environmental Protection: AI-powered monitoring systems track pollution levels and optimize waste management.

- Urban Management: Smart traffic and security systems improve city governance, while data-driven planning supports sustainable development.

3. Conclusion.

This study comprehensively analyzes the current applications of AI in China, highlighting its transformative impact across industries. While AI has achieved remarkable success, challenges such as data security, ethical concerns, and regulatory gaps remain. Future development must prioritize technological innovation, talent cultivation, and standardized policies to ensure sustainable growth.

References:

1. Zhang Yupeng. Current Development Trends and Promotion Strategies of Artificial Intelligence in China[J]. Technology and Innovation, 2022, No.207:73-75+78.

2. Wang Xinxin, Song Jinke, Yun Xiaoke, Li Mengnan. Employment Challenges and Coping Strategies for College Students in the AI Era[J]. China Market, 2020, No.1054:183+192.

3. Chen Yuhang. Research on the Integration of Human Resource Management and Artificial Intelligence in Power Enterprises[J]. Chinese and Foreign Entrepreneurs, 2019, No.629:93-96.

4. Zhao Shuai. Reflections on the Development of Artificial Intelligence Technology[J]. Network Security Technology & Application, 2017, No.201:115+117.

5. Li Li, Du Rui, Song Jianpeng, Yang Mei. Application Analysis of Artificial Intelligence in Computer Technology[J]. Software, 2022, v.43;No.511:84-87.

6. Hao Mingju. Research on Development Dynamics and Trends of Artificial Intelligence in China[J]. Information Recording Materials, 2021, v.22:14-15.

7. Tian Ying. Research on Talent Cultivation for AI Industry in Suzhou Higher Vocational Colleges[J]. Science & Technology Vision, 2019, No.282:177-178.

8. Zhu Yuheng. Artificial Intelligence Technology and Its Application in Intelligent Robotics[J]. Electronic World, 2018, No.543:210-211.

9. Ou Qingqing. Exploration of Artificial Intelligence Industry Development in China [J]. Investment and Entrepreneurship, 2023, v.34;No.427:169-171.

10. Xin Yunhao, Wu Guodong. Analysis of the Development and Application of Artificial Intelligence Technology[J]. China Market, 2019, No.1000:195-196.

11. Kong Gaofeng. Research on the Evolution of Artificial Intelligence Technology Based on Patent Data[D]. Zhengzhou: Zhengzhou University, 2022.

12. Ding Haoming. Research on Innovation Efficiency and Influencing Factors of Growth-oriented AI Enterprises[D]. Guangzhou: South China University of Technology, 2022.

13. Guo Jie. Application of Artificial Intelligence in Museum Education and Publicity[J]. Identification and Appreciation to Cultural Relics, 2021, No.206:140-142.

14. Liu Mengjie. Development Process and Current Status of Artificial Intelligence[J]. Technology Innovation and Application, 2020, No.304:61-62+65.

15. He Qian. Research on the Development of Artificial Intelligence Technology[J]. Modern Science & Technology of Telecommunications, 2016, v.46;No.422:21-24+30.

16. Gao Yunlong, Li Kai, Zhong Guoshuang. Current Situation, Problems and Countermeasures of High-quality Development of Artificial Intelligence in China[J]. Science & Technology for Development, 2023, v.19;No.162:26-31.

17. Chen Xuelian. Analysis and Research on the Application of Computer Artificial Intelligence Technology[J]. Popular Standardization, 2021, No.353:247-249.

18. Zhou Jiasheng, Zhao Fahai, Shao Xinyun. Discussion on the Development and Future Trends of Artificial Intelligence[J]. Electronic Technology & Software Engineering, 2015, No.56:274.

19. Nie Zhiwei. Analysis of the Current Situation and Development Trend of Artificial Intelligence[J]. Digital World, 2017, No.139:188.

20. Li Jianbin, Qiao Ting, Qin Shumei, Li Zhiyong. Overview of Artificial Intelligence Security[J]. China Information Security, 2023, No.162:27-33.