

## China Scholarships Council Project 2024-2028

### Project title:

#### The impact of Artificial Intelligence on Science

### Principal investigator:

- Dr. Lili Wang, Associate professor, UNU-MERIT, Maastricht University, The Netherlands
- Dr. Daniel S. Hain, Associate professor, Aalborg University Business School, Denmark

### Project description:

Artificial Intelligence (AI) stands as a formidable driving force in the expansive domain of science and technology. Its transformative impact transcends conventional boundaries, ushering in ground-breaking innovations across a multitude of disciplines and sectors. AI already now has altered the process and productivity of scientific discovery in many fields, and its impact is projected to increase further in the future. This project aims to shed light on the adoption and utilization of cutting-edge AI and digitalization technologies in scientific research while elucidating their profound influence on scientific advancements. These advancements span diverse scientific domains (e.g. health and social sciences).

To dissect the contributions of AI to scientific research comprehensively, this project employs a mixed approach, including scientometric and econometric analysis as well as the application of data science techniques and natural language processing, offering a nuanced analysis of AI's role in shaping the landscape of scientific research.

This project relates to the following priority majors recommended by the Chinese government:

- 前沿技术 / Frontier Technologies
- 信息技术 / Information Technology
- 基础研究 / Basic Research
- 支撑信息技术发展的科学基础 / Scientific Basis for Development of Information Technology

### Keywords:

- Artificial intelligence (AI); Emerging technologies; Data mining; Scientific research

### Requirement:

- Highly motivated student with good English communication skills.
- Background (at the level of M.Sc) in Information Management, Economics, or a relevant field.

- Excellent quantitative research skills.
- Good knowledge of using big data.
- Skills in advanced analytical approaches.
- Experience with Natural Language Processing techniques.

### 5 major publications of the team:

- Hain, D., Jurowetzki, R., Lee, S. & Zhou, Y., (2023), Machine learning and artificial intelligence for science, technology, innovation mapping and forecasting: Review, synthesis, and applications, *Scientometrics*. 128 (3): 1465-1472
- Wang, L., Jiang, S. & Zhang, S. (2020), Mapping technological trajectories and exploring knowledge sources: A case study of 3D printing technologies, *Technological Forecasting and Social Change*, 161: 120251, DOI: <https://doi.org/10.1016/j.techfore.2020.120251>
- Hain, D. S., Jurowetzki, R., Buchmann, T., & Wolf, P. (2022). A text-embedding-based approach to measuring patent-to-patent technological similarity. *Technological Forecasting and Social Change*, 177, 121559.
- Wang, L. & Li, Z. (2021), Knowledge flows from public science to industrial technologies, *Journal of Technology Transfer*, 46(4): 1232-1255, DOI: 10.1007/s10961-019-09738-9
- Hain, D. S., Jurowetzki, R., Squicciarini, M. & Xu, L. (2023), Unveiling the Neurotechnology Landscape: Scientific Advancements Innovations and Major Trends, Paris: UNESCO.

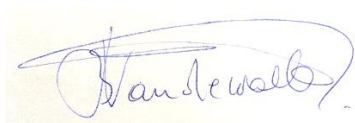
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### Approved by the head of department:

**Name:** Prof. Dr. Bartel van de Walle

**Signature:**



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