

An Yu Chen

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Manchester Institute of Innovation Research (MIOIR) & Alliance Manchester Business School (AMBS), Booth
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Research interests

My research explores questions of how scientific and technological knowledge is generated, flows, and disseminates, with interests in:

- AI-accelerated knowledge diffusion and dissemination between science and technology, leveraging bibliometric data, advanced text analysis, and machine learning to enhance the flow of insights across research and innovation domains
- Strategies for knowledge diffusion and co-evolution of science and technology in addressing societal problems, informed by data-driven insights into mission-oriented research investments.
- Predictive modelling for climate change mitigation technologies, using Random Forest and other machine learning approaches to identify promising scientific and technological trajectories that can accelerate sustainable transitions
- Gender research for inclusivity in scientific and inventive activities, investigating how diverse participation influences technological innovation outcomes

Current Position

April 2025-Present	Research Associate in Science of Science MIOIR & AMBS, University of Manchester
Sept 2021-Present	Doctoral Researcher in Science, Technology and Innovation Policy MIOIR & AMBS, University of Manchester Thesis Title: The Contribution of Scientific Knowledge to Green Technology Development: Three Essays Supervisors: Cornelia Lawson and Silvia Massini Viva Voce: Passed on July 23rd, 2025

Education and Qualifications

Sept 2021-Present	PhD in Science, Technology and Innovation Policy MIOIR & AMBS, The University of Manchester Supervisory Team: Prof. Cornelia Lawson and Prof. Silvia Massini Thesis: <i>The Contribution of Scientific Knowledge to Green Technology Development: Three Essays</i>
Sept 2013-Oct 2015	MA in Business Administration in Technology Management College of Technology Management, National Tsing Hua University
Sept 2010-Jul 2013	BA in Economics College of Technology Management, National Tsing Hua University
Jan 2015-Jun 2015	Exchange Student in Management School of Management, Fudan University

Research Experience

April 2025-Present	Research Associate, MIOIR & AMBS, The University of Manchester <ul style="list-style-type: none">- Worked on an EPO funded project with bibliometric metadata from Scopus and OpenAlex and large-scale PhD thesis datasets- Utilised virtualised Linux environments on server to efficiently download and process terabytes of big data- Contributed to drafting detailed methodological reports and analysis strategies, including analysing key patterns and longitudinal trends within large-scale datasets- Attended a policy engagement training workshop hosted by project funders such as the Innovation & Research Caucus, meeting UKRI representatives
Mar 1 st -31 st 2025	Visiting Scholar, Politecnico di Milano <ul style="list-style-type: none">- Discussed research on the topic of scientific knowledge's contributions to the development of new technologies with EFI (Entrepreneurship, Finance and Innovation) community- Helped promote collaboration at the PhD level between the Department of Management, Economics, and Industrial Engineering at Polimi and Alliance Manchester Business School, following their signed Memorandum of Understanding
May 2024-Dec 2024	Research assistant, MIOIR & AMBS, The University of Manchester <ul style="list-style-type: none">- Project: UK Doctoral Graduates' Contribution to Innovation funded by IRC/ESRC working with Prof. Cornelia Lawson and Dr Xin Deng- Gained experience with ProQuest download processes and coding in TDM Studio- Verified text mining data by checking Scopus author profiles- Learned how to handle missing data and extract data from websites- Analysed bibliography data using R and Python- Wrote reports focusing on the patterns of gender and ethnicity of PhD graduates
Apr 2023-Jan 2024	Research assistant, MIOIR & AMBS, The University of Manchester <ul style="list-style-type: none">- Project: Multiple affiliations in research publications funded by MIOIR working with Prof. Cornelia Lawson and Prof. Hanna Hottenrott- Using PySpark in ICSR Lab to retrieve Scopus data- Worked with ICSR Lab partner and assisted in paper writing- Analysed journal articles from Scopus with topic modelling using Python- Explored AI-related article in Math journals
Sept 2017-July 2020	Student Research assistant, National Taiwan University <ul style="list-style-type: none">- Assisted in delivering the undergraduate Business Management course- Analysed publication data in Taiwan and researched into management implications- Assisted Journal Editor (Prof. Bou-Wen Lin) for Taiwan Hsinchu Industry and Management Forum

Teaching

Sept 2023-Jan 2024	Teaching assistant, Computer Science Department, The University of Manchester <ul style="list-style-type: none">- Assisted in delivering the undergraduate Database System course- Marked assignments on database design- Supported lab sessions with Dr. Gareth Henshall
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Research in Progress

- Chen, A. Y., Lawson, C., & Massini, S. Understanding the connection: How scientific foundations drive innovation in green technologies? [DRUID conference paper]. Targeted journal: Research Policy (RP).
- Chen, A. Y., Lawson, C., & Massini, S. Understanding the characteristics of green scientific knowledge base and connections to technologies [In progress]. Targeted journal: Research Policy (RP).

Chen, A. Y., Lawson, C., & Massini, S. Science Usage in Green Technologies: How do gender dynamics in patent inventor teams influence the use of science? [In progress]. Targeted journal: Research Policy (RP).

Herbert, R., Ding, A., Hottenrott, H., Lawson, C., Chen, A. Y. Bridging academia and industry: The typology and impact of simultaneous academia-industry affiliations [In progress]. Target journal: Journal of Technology Transfer.

Conference Papers and Seminar Presentations (recent)

- Chen, A. Y., Lawson, C., & Massini, S. (2023, September). Green technologies' reliance on science: Investigating the science knowledge base via scholarly work cited in patents. In Proceedings of the 27th International Conference on Science, Technology and Innovation Indicators (STI 2023). <https://doi.org/10.55835/64428908b8e4087ea927341a>
- Chen, A. Y., & Lee, H. (2018, August). The Concerns of Innovating New Product Development Process in High Tech Companies: Evidence from Taiwan. In 2018 Portland International Conference on Management of Engineering and Technology (PICMET) (pp. 1-7). IEEE.
- Gender Homophily in Green Innovation: Do Green Inventors Prefer Science by Their Own Gender? Paper presented at the R&D management conference 2025, Pisa Italy (2025).
- Learning by Association: The Uneven Benefits of AI Adoption for UK PhD Graduates' Performance. UK Doctrack project output presented at the EmELHE Project Kick-off Workshop at the University of Kassel (INCHER Uni Kassel), Germany (2025).
- Gender Homophily in Green Innovation: Do women inventors cite work by women more? Paper presented at the Open innovation in science (OIS) Conference, Vienna (2025).
- The Impact of Scientific Characteristics on Green Technologies: Exploring Novel and Interdisciplinary Knowledge. Paper presented at the workshop of Organisation, Economics and Policy of Scientific Research at the Bureau d'Économie Théorique et Appliquée (BETA) (2025).
- Understanding the characteristics of green scientific knowledge base. Paper presented at EFI (Entrepreneurship, Finance and Innovation) Research Seminar at Department of Management, Economics and Industrial Engineering of Politecnico di Milano (2025).
- The nexus between science and technology: How are synergies manifesting between the scientific foundations and innovations in green technologies? Paper presented at the DRUID24 conference. (2024).
- Understanding the connection: How scientific foundations drive innovation in green technologies? Paper presented at the 10th ZEW Conference on the Economics of Innovation and Patenting, Mannheim, Germany. (2024, September 26-27).
- The nexus between science and technology: How are synergies manifesting between the scientific foundations and innovations in green technologies? EoSI Workshop 2024: 30-31st May, Bordeaux, France. (2024, May).
- How green technology patents link to their scientific knowledge base. Eu-SPRI2023 ECR event, University of Sussex Business School, June 13, 2023. (2023).
- Green technologies and their reliance on science: Research into knowledge bases using patent citations. REGIS Summer School, Sant'Anna School of Advanced Studies, Pisa, Italy, June 5–7, 2023. (2023).
- Green technologies and their reliance on science: Research into knowledge bases using patent citations. 3rd Early Career Researchers Conference – SIIB2023, Manchester, UK. (2023).
- How green technologies rely on a range of fields in science: A research into knowledge base via patent citations. ECC PhD Days Ingenio 2023: Addressing old and new social challenges: Knowledge, policies, inclusion. Valencia, Spain. (2023, February).
- An investigation of interdisciplinary research: Knowledge flows and technological fusion in environmental technologies. Doctoral Symposium, BAM2022 Conference, British Academy of Management, Manchester, UK. (2022).
- An investigation into interdisciplinary trends and processes via social network analysis. Q-KNOW PhD Workshop. Online. (2021)

Research Reports

Lawson, C., Deng, X., Martinez, C., Corsini, A., Panda, S., Shen, T., Chen, A.Y., Ding, L. (2024) STEM Doctoral Graduates and Inventive Activities: DOC-TRACK extension to United Kingdom, First technical Report.

Awards and Grants

Alliance Manchester Business School PhD Scholarship (UoM), full tuition and stipend for doctoral research (2021-25)

RADMA Postgraduate Research Support Award plus AMBS grant, funded travel and registration to present research on Gender Homophily in Green Innovation at the R&D Management Conference, Pisa (July 2025)

Eu-SPRI circulation scheme-PhD circulation Award, supported visiting PhD research stay at Politecnico di Milano School of Management (March 2025)

10th ZEW Conference on the Economics of Innovation and Patenting (InnoPat), travel funding for conference participation, Mannheim, Germany (September 2024)

RADMA Postgraduate Research Support Award, supported a trip for my research training in patent data at KU Leuven (July 2024)

Taiwan and German Academic Exchange Service (DAAD), funded summer PhD internship at University of Magdeburg, Germany, supervised by Prof. Sándor Vajna. (2015)

Industry Experience

Aug 2016- Jul 2017

Customer Service Specialist, Booking.com

- Managed XML data files for internal systems and resolved complex customer issues in a multicultural environment.
- Enhanced communication and problem-solving abilities by addressing intricate customer issues in a dynamic, international setting.

Programming skills

R (proficient), Python (proficient; specific in econometrics and tidying data), SQL (novice)

Services and Memberships

- Reviewer for Journal of Information Science; Journal of Management and Governance; Humanities and Social Sciences Communications; R&D Management Conference
- Volunteer for the National Tsing Hua University (NTHU) International Volunteer Team, summer 2014, brought computers to teach IT skills in Tanzania