

Dawoon Jeong

Postdoctoral Scholar, Knowledge Lab, Department of Sociology, The University of Chicago

Chicago, IL, USA | +1-872-314-6210 | jdwoon0523@uchicago.edu | [Homepage](#) | [GitHub](#)

Also published as: **Dawoon Jung** | Last updated: May 1, 2026

Research Summary

I study the evolution of sciences, technologies, products, and institutions using computational social science, network science, and AI. My work develops data-driven measures of complexity and evolutionary structure (e.g., phylogeny/lineage, embeddings) and applies them to innovation, science of science, and legal/organizational systems.

Research Interests & Methods

Research Interests: computational social science; science of science; complex systems; innovation; networks; technology/product evolution

Methods: network analysis; evolutionary/phylogenetic modeling; text mining & NLP; representation learning/embeddings; statistical modeling

Computational Skills: Python; PyTorch; R; Git; \LaTeX ; CosmoGraph (visualization)

Professional Appointment

The University of Chicago, Chicago, IL, USA Sep 2025 – Present
Postdoctoral Scholar, Knowledge Lab, Department of Sociology
Advisor: James Evans

Northwestern University, Evanston, IL, USA Sep 2024 – Aug 2025
Postdoctoral Fellow, Management & Organization, Kellogg School of Management
(Affiliated with the Northwestern Institute on Complex Systems)
Advisor: Hyejin Youn

Seoul National University, Seoul, Korea Mar 2024 – Aug 2024
Postdoctoral Fellow, Engineering Research Institute
Advisor: Jeong-Dong Lee

Ulsan National Institute of Science and Technology (UNIST), Ulsan, Korea Feb 2024 – Feb 2025
Adjunct Professor (part-time; concurrent appointment)

Education

Ph.D. in Engineering Mar 2020 – Feb 2024
Seoul National University, Seoul, Korea
Dissertation: “A Study on Generalized Evolutionary Patterns of Product: Learning on Mobile Product Phylogenetic Network”
Committee: Jeong-Dong Lee, Jongsu Lee, Donghyun Oh, Junghye Lee, Yoonmo Koo

M.S. in Engineering Mar 2018 – Feb 2020
Seoul National University, Seoul, Korea

B.S. in Physics Feb 2009 – Aug 2016
Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea

Publications

*Notation: * Corresponding author. † Equally contributed.*

Reviewed Articles

1. **Dawoon Jeong**[†], James Holehouse^{†*}, Jisung Yoon, Christopher P. Kempes, Geoffrey B. West, Hyejin Youn* (2026). A Dataset Showing a Century of Evolution in the Complexity of the United States Legal Code. *Scientific Data*, 13, 13. DOI.
 - Press: Santa Fe Institute, “New dataset reveals how US law has grown more complex over the past century.” [Link](#).
2. Hayoung Park, **Dawoon Jeong***, Jeong-Dong Lee (2026). Revisiting the Routine of a Multidimensional Approach to Heterogeneous Firms: Quantification and Classification of Innovation Routines. *Journal of Evolutionary Economics*. DOI.
3. **Dawoon Jeong**^{†*}, Soohyoung Lee[†], Jeong-Dong Lee (2026). Contrasting Pathways of Automation: Routine Task Substitution vs. AI Complementarity. *Humanities and Social Sciences Communications* (Accepted).
4. **Dawoon Jeong***, Jeong-Dong Lee (2025). Mapping Product Development Trajectories: Product Citation Network. *Scientometrics*, 130, 4667–4696. DOI.
5. Hayoung Park, **Dawoon Jeong***, Jeong-Dong Lee (2025). Evolutionary mechanism for diversity dynamics in technology using a phylogenetic tree approach: directional suggestions for photovoltaic technology. *Industrial and Corporate Change*, 34 (1), 53–78. DOI.
6. **Dawoon Jeong***, Jeong-Dong Lee (2024). Where and How Does a Product Evolve? Product Innovation Pattern in Product Lineage. *Technovation*, 131, 102958. DOI.
7. Jeong-Dong Lee, **Dawoon Jeong***, Euy-Young Jung, Yunyoung Kim, Jiyong Kim, Youwei He, Sungjun Choi (2024). Mapping the Evolutionary Pattern of Mobile Products: A Phylogenetic Approach. *IEEE Transactions on Engineering Management*, 71, 4776–4790. DOI.
8. **Dawoon Jeong**, Chanlim Park*, Taewon Kang, Kiyoon Shin, Sungjun Choi, Junseok Hwang (2023). Measuring ethics level of technological topics using phylogenetic tree. *Technology Analysis & Strategic Management*, 36(11), 3417–3430. DOI.
9. Hoyoon Lee, **Dawoon Jeong***, Jeong-Dong Lee (2023). Drivers of institutional evolution: phylogenetic inertia and ecological pressure. *Journal of Evolutionary Economics*, 33(2), 279–308. DOI.

Reports

1. Anwar Aridi, Jeong-Dong Lee, Kibum Kim, Kyeyoung Shin, **Dawoon Jeong**, Wonsub Eum, Taewon Kang (2024). *Diversification through the Application of the Co-evolutionary Framework: Korea and Viet Nam*. Washington, DC: World Bank.

Reviewed Articles (Domestic)

1. Jeong-Dong Lee, Keun Lee, Jongsu Lee, Yongdai Kim, **Dawoon Jeong*** (2025). Multidimensional Development Pathways to Economic Complexity: Comparative Analysis of South Korea and Vietnam in Product-Technology Space. *Innovation Studies*, 20 (1).
2. Kiyoon Shin, **Dawoon Jeong***, Yoonhwan Oh (2024). An Analysis of Global Research Space for Smart Manufacturing Based on Academic Literature. *Journal of Industrial Convergence*, 22(11), 1–11.
3. Yeongjun Yeo, **Dawoon Jeong***, Kiyoon Shin, Jaewon Choi, You-bean Kim (2022). Analysis of evolution patterns and path dependences of the mid- to long-term strategies in the S&T field with qualitative and quantitative findings. *Journal of Korea Technology Innovation Society*, 24(5).

Manuscripts Under Review

1. **Dawoon Jeong**, Saangkeuk Lee, Wonsub Eum*. Learning from Rivals: Diversification Paths from Countries with Similar Export Structures. *The World Economy* (Revise & Resubmit)
2. **Dawoon Jeong**, Taewon Kang, Saerom Si, Sangnam Lee, Wonsub Eum*. Mapping Innovation Networks: A Network-Based Approach to Actor Heterogeneity in National Innovation Systems. *Scientometrics* (Revise & Resubmit)
3. **Dawoon Jeong**[†], Junghun Chae[†], WooJoong Kim[†], Woochul Jung[†], Roktaek Lim[†], Manoj Chamlagain, Giju Jung, Juneil Jang, Jae Won Lee, Nam Kyu Kang, Kwangryul Baek, Jonghyeok Shin, Ye-Gi Lee, Hyun Gi Koh, Chanwoo Kim, Sangdo Yook, Allen Ka Loon Cheung, Yong-Su Jin, Hyejin Youn*, Pan-Jun Kim* and Cheol-Min Ghim*. Warning signals for long-term innovative potential of genetic research under commercial pressure. *EPJ Data Science* (Under Review)
4. **Dawoon Jeong**^{†*}, Soohyoung Lee[†], Jeong-Dong Lee. The central embeddedness of general skills and their influence on occupational wages. *Humanities and Social Sciences Communications* (Under Review)
5. Sungwoo Jang, **Dawoon Jeong**, Seolmin Yang, Seungryul Shin*. Reliance on Disruptive Science and the Translation of Science into Technology. *Management Science* (Under Review)

Working Papers

Technology Evolution & Science of Science

1. **Dawoon Jeong**, James Evans. Predicting Recombinant Innovation and Emergent Functions in Manifold Space.
2. **Dawoon Jeong**, Chris Kempes, James Evans. Scaling Laws for Knowledge-to-Product Translation Across Industries.
3. Seolmin Yang, **Dawoon Jeong**, Yong-Yeol Ahn, Hyejin Youn*. Idea Timing: Structure as the Hidden Variable in Innovation.
4. Yeokyung Hwang, **Dawoon Jeong***. The Evolution of Scientific Knowledge and Social Discourse: A Multi-Layer Network Analysis of AI Technologies.

Institutions & Legal Complexity

1. **Dawoon Jeong**, Jisung Yoon, Hyejin Youn. Exploring the complexity of Code of Federal Regulation.
2. James Holehouse, **Dawoon Jeong**, Chris Kempes, Geoffrey B. West, Hyejin Youn. Exploring the complexity of the US law.

Labor Market & Skills

1. **Dawoon Jeong**, Moh Hosseinioun, Hyejin Youn*. Skill–Technology Dependencies and Wage Premium in a Polarized Labor Market.

Data & Software

- **A Dataset Showing a Century of Evolution in the Complexity of the United States Legal Code** (associated with *Scientific Data*, 2026). DOI/URL: <https://doi.org/10.6084/m9.figshare.29540039>.

Conferences & Talks & Visiting

Conference Presentations

- **Dawoon Jeong**. “Evolution of the Legal System.” *Science in “3” Flash Talk, Postdocs in Complexity Conference: The Postdoc Tapestry, Weaving Global Collaboration*, Santa Fe Institute, 2025.
- **Dawoon Jeong**, Jeong-Dong Lee, Jiyong Kim, Youwei He, Sungjun Choi, Joomin Lee. “Evolutionary Pattern for Product Innovation: Learning on Product Phylogenetic Network.” *2nd International Conference on Science of Science and Innovation*, Evanston, USA, 2024. (Poster)

Invited Talks / Seminars

- **Dawoon Jeong**. “Scaling laws of knowledge-to-product translation across industries.” *Weekly KLab Seminar*, University of Chicago, Chicago, USA, 2026.
- **Dawoon Jeong**. “At the Frontier: What I’m Working on at the Edge of innovation Research.” *TEMEP Seminar*, Seoul National University, Seoul, Korea, 2026.
- **Dawoon Jeong**. “A Dataset Showing a Century of Evolution in the Complexity of the United States Legal Code.” *Journal Club*, Seoul National University, Seoul, Korea, 2026.
- **Dawoon Jeong**. “A Study on Generalized Evolutionary Patterns of Products: Learning on Mobile Product Phylogenetic Network.” *Journal Club*, Northwestern University, Evanston, USA, 2024.
- **Dawoon Jeong**. “A Study on Generalized Evolutionary Patterns of Products: Learning on Mobile Product Phylogenetic Network.” *KISTI Global R&D Analysis Center Seminar*, Seoul, Korea, 2024.
- **Dawoon Jeong**. “A Quantitative Approach to Technology and Product Evolution Analysis.” *KISTI Global R&D Analysis Center Seminar*, Seoul, Korea, 2023.

Workshops, Schools, and Visiting

- Visiting Scholar, Santa Fe Institute, 2024, 2025, 2026.
- *Economic Complexity, Geography and Innovation Workshop*, Harvard Kennedy School, 2025.
- *Economics Fitness & Complexity School*, UNU-MERIT, 2024.

Grants

External Grants / Fellowships

- **National Research Foundation of Korea — 2023 Ph.D. Fellowship** (KRW 40,000,000). Coverage: Sep 2023 – Feb 2024.

- **KISTEP — 2022 KISTEP Fellowship** (KRW 3,000,000). Coverage: Jun 2022 – Nov 2022.
- **KIST — 2021 KIST Convergence Research Fellowship** (KRW 3,000,000). Coverage: Jun 2021 – Oct 2021.

Research Projects (as Participant)

- **APTO: Assessing and Predicting Technology Outcomes.** National Science Foundation (NSF 2404109). Role: Researcher. Sep 2025 – Present.
- **URoL:EN: Towards a Unified Theory of Regulatory Functions and Networks across Biological and Social Systems.** National Science Foundation (EF-2133863). Role: Researcher. Sep 2024 – Aug 2025.
- **Co-evolutionary Pattern of Production and Technology for Malaysia: Opportunities for Phase and Green Transition.** World Bank Group. Role: Researcher.
- **Patterns of Economic Diversification via Coevolution of Production and Technology.** World Bank Group. Role: Researcher.

Teaching and Advising

Courses

- **Advanced Data Mining with Artificial Intelligence (BAT51201)** — UNIST (Fall 2024).
- **Text Mining (BAT54201)** — UNIST (Spring 2024).
- **Analytics Programming with Application (BAT563001)** — UNIST (Spring 2024).

Advising (Co-Advising)

- Soohyoung Lee, Ph.D., Seoul National University. Sep 2024 – Present.
- Yeokyung Hwang, Ph.D. Candidate, Seoul National University. Sep 2024 – Present.
- Hayoung Park, Ph.D., Seoul National University. Sep 2022 – Jan 2026.
- Hoyoon Lee, Ph.D., Seoul National University. Feb 2021 – Feb 2022.

Academic Service

- Program Committee, Atlanta Conference on Science and Innovation Policy 2025.
- Ph.D. Thesis Examiner, Seoul National University, 2026 (2 theses).
- Ad hoc reviewer: *Research Policy*; *Scientific Reports*; *npj Complexity*; *Humanities and Social Sciences Communications*; *Science and Public Policy*.

References

- James Evans, Max Palevsky Professor of Sociology & Data Science, University of Chicago. jevans@uchicago.edu
- Jeong-Dong Lee, Professor, Seoul National University. leejd@snu.ac.kr
- Chris Kempes, Professor; Chair, Science Steering Committee, Santa Fe Institute. ckempes@gmail.com
- Hyejin Youn, Associate Professor, Seoul National University. h.youn@snu.ac.kr
- James Holehouse, Assistant Professor, Washington University in St. Louis (WashU). jamesholehouse1@gmail.com