

# Curriculum Vitae

**Gyumin Lee**



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## EDUCATION

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| <ul style="list-style-type: none"><li>• <b>Ulsan National Institute of Science and Technology</b><br/>School of Business Administration<br/><i>Doctor of Philosophy in Management Engineering</i><br/><i>Thesis: "Development of decision support systems for technology and business opportunity analysis"</i></li></ul> | Ulsan, Republic of Korea<br><i>Aug. 2017 – Aug. 2023</i> |
| <ul style="list-style-type: none"><li>• <b>Ulsan National Institute of Science and Technology</b><br/>School of Electrical and Computer Engineering<br/><i>Bachelor of Engineering in Computer Science</i></li></ul>  | Ulsan, Republic of Korea<br><i>Mar. 2011 – Aug. 2017</i> |

## POSITION HELD

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| <ul style="list-style-type: none"><li>• <b>Korea University</b><br/>Department of Statistics<br/><i>Postdoctoral Researcher</i></li></ul>  | Seoul, Republic of Korea<br><i>Mar. 2024 – Present</i>   |
| <ul style="list-style-type: none"><li>• <b>Korea University</b><br/>Center for AI and Big Data in Public Sector,<br/>Institute of Governmental Studies<br/><i>Participating researcher</i></li></ul> | Seoul, Republic of Korea<br><i>Aug. 2023 – Present</i>   |
| <ul style="list-style-type: none"><li>• <b>Ulsan National Institute of Science and Technology</b><br/>Graduate School of Interdisciplinary Management<br/><i>Collegiate faculty</i></li></ul>        | Ulsan, Republic of Korea<br><i>Aug. 2023 – Jan. 2024</i> |

## RESEARCH EXPERIENCE

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| <ul style="list-style-type: none"><li>• Innovation and Policy Analytics LAB (IPA-LAB)<br/><i>Researcher</i></li></ul>                            | <i>Aug. 2023 – Present</i>   |
| <ul style="list-style-type: none"><li>• Technology and Innovation Management Lab (TIM-LAB)<br/><i>Research Assistant</i></li></ul>               | <i>Aug. 2017 – Aug. 2023</i> |
| <ul style="list-style-type: none"><li>• Technology and Innovation Management Lab (TIM-LAB)<br/><i>Undergraduate Research Assistant</i></li></ul> | <i>Jun. 2016 – Aug. 2017</i> |

## RESEARCH INTERESTS

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- Data analytics
- Technology management
- Intelligent manufacturing systems
- Drug discovery
- Natural language processing
- Generative AI

## SKILLS AND TECHNIQUES

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- Key skills: Machine learning, Deep learning, Language model, System design and development, Web scraping
- Technical skills: Python, R, SQL

## PROJECTS

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| 1. Development of a method for measuring similarity between designated products<br><b>Korea Institute of Intellectual Property (KIIP, 한국지식재산연구원)</b>   | <i>May. 2023 – Nov. 2023</i> |
| 2. Planning of a system for diagnosing industrial innovation capability<br><b>Korea Planning &amp; Evaluation Institute of Industrial Technology (KEIT, 한국산업기술기획평가원)</b>   | <i>Jan. 2023 – Aug. 2023</i> |
| 3. Development and application of methods towards the NRF's digital transformation: Focusing on 'expert panel organization' and 'researcher activity analysis'<br><b>National Research Foundation of Korea (NRF, 한국연구재단)</b> | <i>Nov. 2022 – May. 2023</i> |
| 4. Railway power distribution line sensing data analysis<br><b>Nemosis ((주)네모시스)</b>   | <i>Mar. 2022 – Oct. 2022</i> |
| 5. Developing a concordance table for integrated IP analytics: Linkages among patent, trademark, and design classification codes<br><b>Korea Intellectual Property Office (KIPO, 특허청)</b>                                    | <i>Jun. 2021 – Jan. 2022</i> |
| 6. Development of a model for shopping products classification and consultation intention classification<br><b>KTH</b>   | <i>Dec. 2020 – Mar. 2021</i> |
| 7. Development of a battery life deterioration prediction method to accelerate qualification tests on Li-ion batteries<br><b>Hyundai Motor Group (현대자동차)</b>   | <i>Mar. 2020 – Sep. 2020</i> |
| 8. Discovery of Serendipitous drug candidates based on artificial intelligence methods<br><b>Daewoong Foundation (대웅재단)</b>  | <i>Jan. 2019 – Aug. 2023</i> |
| 9. Development of operation supporting technology based on artificial intelligence for nuclear power plant start up and shutdown operation<br><b>Korea Hydro &amp; Nuclear Power (KHNP, 한국수력원자력)</b>                         | <i>Jan. 2018 – Mar. 2019</i> |
| 10. Identifying high-risk subrogation group based on the analysis  | <i>Oct. 2016 – Dec. 2016</i> |

PUBLICATIONS

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**Peer Reviewed Journal Articles**

1. Jungwon Park, **Gyumin Lee**, Daeseong Jeon, Jaewoong Choi, and Changyong Lee, 2024. Language models and administrative innovation in the public sector: Concept, approaches, and considerations. *Journal of Governmental Studies*. DOI: -. ISSN: 1229-4241. [Published on Apr. 17, 2024]
2. **Gyumin Lee**, Sungjun Lee, and Changyong Lee, 2023. Inventor–licensee matchmaking for university technology licensing: A fastText approach. *Technovation (SCIE/SSCI)*, 125, p.102765. DOI: 10.1016/j.technovation.2023.102765. ISSN: 0166-4972. [Published on Jul. 1, 2023]
3. **Gyumin Lee**, Daeil Kwon, and Changyong Lee, 2023. A convolutional neural network model for SOH estimation of Li-ion batteries with physical interpretability. *Mechanical Systems and Signal Processing (SCIE)*, 188, p.110004. DOI: 10.1016/j.ymssp.2022.110004. [Published on Apr. 1, 2023]
4. Joram Kim, **Gyumin Lee**, Seungbin Lee, and Changyong Lee, 2022. Towards expert–machine collaborations for technology valuation: An interpretable machine learning approach. *Technological Forecasting and Social Change (SSCI)*, 183, p.121940. DOI: 10.1016/j.techfore.2022.121940. ISSN: 0040-1625. [Published on Oct. 1, 2022]
5. **Gyumin Lee**, Joram Kim, and Changyong Lee, 2022. State-of-health estimation of Li-ion batteries in the early phases of qualification tests: An interpretable machine learning approach. *Expert Systems with Applications (SCIE)*, 197, p.116817. DOI: 10.1016/j.eswa.2022.116817. ISSN: 0957-4174. [Published on Jul. 1, 2022]
6. **Gyumin Lee**, Seung Jun Lee, and Changyong Lee, 2021. A convolutional neural network model for abnormality diagnosis in a nuclear power plant. *Applied Soft Computing (SCIE)*, 99, p.106874. DOI: 10.1016/j.asoc.2020.106874. ISSN: 1568-4946. [Published on Feb. 1, 2021]
7. Jae Min Kim, **Gyumin Lee**, Changyong Lee, and Seung Jun Lee, 2020. Abnormality diagnosis model for nuclear power plants using two-stage gated recurrent units. *Nuclear Engineering and Technology (SCIE)*, 52(9), p.2009–2016. DOI: 10.1016/j.net.2020.02.002. ISSN: 1738-5733. [Published on Sep. 1, 2020]
8. **Gyumin Lee**, Daejin Kim, and Changyong Lee, 2020. A sequential pattern mining approach to identifying potential areas for business diversification. *Asian Journal of Technology Innovation (SSCI)*, 28(1), p.21–41. DOI: 10.1080/19761597.2019.1693900. ISSN: 1976-1597. [Published on Jan. 2, 2020]
9. Changyong Lee and **Gyumin Lee**, 2019. Technology opportunity analysis based on recombinant search: patent landscape analysis for idea generation. *Scientometrics (SCIE/SSCI)*, 121(2), p.603–632. DOI: 10.1007/s11192-019-03224-7. ISSN: 0138-9130. [Published on Nov. 1, 2019]

## CONFERENCES

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1. Changhun Lee and **Gyumin Lee**, 2024. Repurformer: Transformers for repurposing-aware molecule generation. In *Language and Molecules ACL 2024 (Oral)*.
2. **Gyumin Lee** and Changyong Lee, 2024. Seek your fortune!: Technological impact-guided technology opportunity analysis using generative-predictive machine learning models. In *2024 Winter Conference of Korea Society for Innovation Management & Economics*.
3. **Gyumin Lee** and Changhun Lee, 2021. Development of a method for identifying new drug candidates based on generative and predictive deep learning models considering the possibility of drug repurposing. In *2021 Spring Conference of Korean Institute of Industrial Engineers*.
4. Jae Min Kim, **Gyumin Lee**, Suckwon Hong, and Seung Jun Lee, 2019. Input data dimensionality reduction of abnormality diagnosis model for nuclear power plants. In *International Conference on Intelligent Human Systems Integration*.
5. Changhun Lee, **Gyumin Lee**, and Chiehyeon Lim, 2018. Development of a context-aware serendipitous recommender system. In *INFORMS Annual Meeting 2018*.

## COURSES TAUGHT

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| 1. [Graduate] Advanced Data Mining with AI | <i>Sep. 2023 – Dec. 2023</i> |
| 2. [Graduate] Database Management          | <i>Sep. 2023 – Dec. 2023</i> |

## HONORS AND AWARDS

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| 1. <b>UNIST Best Research Award</b> ,<br>Ulsan National Institute of Science and Technology<br><i>In recognition of outstanding performance in the conduct of research.</i><br><i>Thesis titled "Development of decision support systems for technology<br/>and business opportunity analysis"</i> | <i>Feb. 2024</i> |
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