Yeji Kim

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EDUCATION

University of Texas at Austin — **Texas, United States**
Civil, Architectural and Environmental Engineering — 2021 – Present

Gwangju Institute of Science and Technology (GIST) — **Gwangju, South Korea**
Master of Science in Earth Sciences and Environmental Engineering — 2017 – 2019

Ewha Womans University — **Seoul, South Korea**
Bachelor of Science in Environmental Science & Engineering — 2014 – 2016

RESEARCH & WORK EXPERIENCE

University of Texas at Austin — **Texas, United States**
Graduate Research Assistants, Future water systems Lab (Professor Matthew Bartos) — July. 2021– Present

- Development of a stormwater digital twin for real-time monitoring of water levels and flow rates in a watershed.
- Multi-sensor and model fusion method to detect the existence of leaks in pipe networks. (NSF Award 2220516)

University of Seoul — **Seoul, South Korea**
Research Scientist, Water resources management Lab — Jan. 2021– Jun. 2021

- Deep learning analysis with transfer learning for water quality prediction models.

Polyscape — **Daejeon, South Korea**
Software & IoT developer at Urban platform service company — Jan. 2020–Jun. 2020

- Developed IoT system to collect real-time data such as air quality (PM2.5, PM10), and population with Raspberry Pi
- Organized and managed database (MySQL) server and web server (Django web frame) for analysis and visualization of real-time data with REST API

Gwangju Institute of Science and Technology (GIST) — **Gwangju, South Korea**
Researcher of technology transfer — Aug. 2019–Dec. 2019

- Conveyed promising technologies, such as the application of advanced materials and artificial intelligence, from scientific research to the tech industries

Korea Advanced Institute of Science and Technology (KAIST) — **Daejeon, South Korea**
Research Scientist, Urban Data Analyst — Jun. 2019–Aug. 2019

- Analyzed the impact of air quality on the floating population by age group

PAPER & CONFERENCE

- **Kim, Y.**, Huang, Y., Bartos, M. (2025). From Field Data Collection to Smart Operations: A Digital Twin Framework for Rural Alaska Water Distribution Systems [npj clean water, Preparation]
- **Kim, Y.** & Bartos, M. (2025). Probabilistic parameter-estimation framework for discovery of pre-existing leaks in water distribution systems [Water Research, Preparation]
- **Kim, Y.** & Bartos, M. (2025). Exploring Marginal Likelihood Estimation for Leak Analysis in Water Distribution Systems [16th International Conference on Hydroinformatics, Submitted]
- **Kim, Y.**, Cantrell, R., Bartos, M., & Sela, L. (2025). Design, deployment, and evaluation of wireless sensors for monitoring water distribution systems in rural Alaska. *Proceedings of EWRI 2025*, Anchorage.
- **Kim, Y.**, Oh, J., & Bartos, M. (2024). Stormwater digital twin with online quality control detects urban flood hazards under uncertainty. *Sustainable Cities and Society*, 105982.
- **Kim, Y.**, Oh, J., & Bartos, M. (2023). A digital twin testbed for real-time stormwater modeling with online quality control. In Novatech 2023. [Presentation]
- Oh, J., **Kim, Y.**, & Bartos, M. (2023). Machine learning regression for calibration and prediction of low-cost stream gauges. HydroML symposium, Berkeley, CA. [Presentation]

- Yang, E., Park, S., **Kim, Y.**, Yanar, N., & Choi, H. (2023). Fabrication and Investigation of Acid Functionalized CNT Blended Nanocomposite Hollow Fiber Membrane for High Filtration and Antifouling Performance in Ultrafiltration Process. Membranes, 13(1), 70.
- Kim, Y. W., Kim, T., Shin, J., Lee, D. S., Park, Y. S., **Kim, Y.**, & Cha, Y. (2022). Validity evaluation of a machine-learning model for chlorophyll a retrieval using Sentinel-2 from inland and coastal waters. Ecological Indicators, 137, 108737.
- **Kim, Y.**, Oh J., & Bartos, M. (2022). A digital twin model with online quality control for real-time rainfall-runoff modeling at the watershed scale. American Geophysical Union 53rd Annual Fall Meeting, Chicago, IL. [Poster]
- **Kim, Y.**, Yang, E., Park, H., & Choi, H. (2020). Anti-biofouling effect of a thin film nanocomposite membrane with a functionalized-carbon-nanotube-blended polymeric support for the pressure-retarded osmosis process. RSC Advances, 10(10), 5697-5703.
- **Kim, Y.**, Choi, J., & Lee, D. (2019). The Impact of Air Quality on Floating Population by Age Group in Yeouido, Seoul. In The 32nd KKHTCNN symposium on Civil Engineering. Korea Advanced Institute of Science and Technology.
- Yanar, N., Son, M., Yang, E., **Kim, Y.**, Park, H., Nam, S. E., & Choi, H. (2018). Investigation of the performance behavior of a forward osmosis membrane system using various feed spacer materials fabricated by 3D printing technique. Chemosphere, 202, 708-715.
- Munagapati, V. S., Yarramuthi, V., **Kim, Y.**, Lee, K. M., & Kim, D. S. (2018). Removal of anionic dyes (Reactive Black 5 and Congo Red) from aqueous solutions using Banana Peel Powder as an adsorbent. Ecotoxicology and environmental safety, 148, 601-607.

AWARDS & HONORS

Friends of Alec Graduate Student Fellowship **2025**

Kolodzey Travel Grant **2024**

***2019* Just! Start-Up Entrepreneurship Competition** **2019**
- Third place prize for the idea of an automatic parasol device (Polyscape)

Preliminary Start-up Grant for Smart City Sector, K-Water **2019**
- Awarded government grant to develop the product for application in a smart city (Polyscape)

2018 Youth Start-up Idea Competition, Gwangju Creative Economy Innovation Center **2018**
- Excellence award for the idea of an automatic recording system for kinetic data (Fitcare)

National Academy of Engineering of Korea - Young Engineers Honors Society (NAEK-YEHS) **2017**

Government Scholarship, Gwangju Institute of Science and Technology **2017–2018**

TEACHING EXPERIENCE

University of Texas at Austin **2025**

Teaching Assistant - Elements of Hydraulic Engineering (CE 356)
- Instructed laboratory sessions for the undergraduate course (2025 Spring)

GIST Global Science Camp **Jul. 2018**

Instructor (National University of Laos and the University of Cancun)
- Demonstrated a water treatment experiment using the Mekong River and an experiment related to air pollution and solar batteries

GIST's Knowledge Sharing Activity **2018**

Mentor
- Mentored underprivileged youth in Gwangju on their future careers and taught math and science subjects

Junior Engineering Class, YESH's Activity **2015–2016**

Teaching Assistant
- Instructed advanced industrial technologies and their application principles through experiments