

# Kichang Choi

Ph.D. student  
Yonsei University  
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## EDUCATION

Mar. 2013 ~ Feb. 2019	<b>Dankook University</b> Department of Architectural Engineering <i>B.S. in Architectural Engineering</i> GPA: 3.43 / 4.5	Yongin, Korea
Mar. 2023 ~ Present	<b>Yonsei University</b> School of Civil and Environmental Engineering <i>Advisor: Hongjo Kim</i> <i>Ph.D. Student</i> GPA: 4.09 / 4.5	Seoul, Korea

## RESEARCH INTERESTS

- Retrieval Augmented Generation in Construction domain
- Embedding model
- Levee failure prediction
- Concrete rheological property detection

## PUBLICATIONS (SCIE/ESCI)

1. Sarmad Idrees, Joshua Agung Nugraha, Shafaat Tahir, Kichang Choi, Jongeun Choi, Deug-Hyun Ryu, Jung-Hoon Kim, "Automatic concrete slump prediction of concrete batching plant by deep learning", *DEVELOPMENTS IN THE BUILT ENVIRONMENT*, (2024)
2. Basha, Shaik Inayath, Nugraha, Joshua Agung, Rehman, Atta Ur, Choi, Kichang, Park, Sungwoo, Kim, Jung-Hoon, "Structuration and yield strength characterization of hybrid alkali-activated cement composites (HACC) for ultra-rapid 3D construction printing", *CONSTRUCTION AND BUILDING MATERIALS*, (2024)
3. Atta Ur Rehman, Manmin Kang, Shaikd Inayath Basha, Kichang Choi, Jung-Hoon Kim, "Knife Cut Test of Concrete: The Introduction of a New Test Method for Measurement of the Structural Build-Up of 3D Concrete Printing Materials", *RILEM BOOKSERIES*, (2024)
4. Atta Ur Rehman, Shaik Inayath Basha, Kichang Choi, Manmin Kang, Jung-Hoon Kim, "An Analysis of Penetrometer Test Methods for Structural Build-Up in Stiff and Accelerated 3D Concrete Printing Mixtures", *SPRINGER*, (2024)

## CONFERENCES

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1. Wei-Chih Chern, Kichang Choi, Vijayan Asari, Hongjo Kim, "The 10th International Conference on Construction Engineering and Project Management", ICCEPM, Sapporo, Japan (Jul. 2024) - Oral
2. Kichang Choi, Seungwon Baek, Hongjo Kim, "2024 Regular Academic Conference", Korea Institute of Construction Engineering and Management, Jeju, Korea (Nov. 2024) - Oral

## RESEARCH EXPERIENCES

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- Research Student at Smart Infrastructure Laboratory, Yonsei University, Korea (Mar. 2023 ~ Present)

## PROJECTS

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- Eugene Concrete Slump Prediction Framework Development, Yonsei University, Korea / Software and Deep learning model developer (Mar. 2023 ~ Present)
- Autonomous Evolutionary AI-Based Smart Sensing Platform for Early Detection and Proactive Response to Levee Failures, Yonsei University, Korea / Project Manager (Aug. 2024 ~ Present)

## SKILLS AND TECHNIQUES

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- Construction Engineering and Management
  - Proficient in managing construction schedules, including drafting detailed construction timelines and coordinating with other trades to optimize workflows.
  - Extensive experience in structural construction, including core-first method, top-down construction, and specialized techniques such as CFT columns, TU steel beams, and gas pressure welding methods.
  - Successfully applied Value Engineering (VE) techniques to optimize structural redesign, achieving material reductions (e.g., ~200 tons of rebar reduction via structural redesign and ~90 tons via gas pressure welding).
  - Expertise in conducting site inspections, ensuring adherence to safety protocols, and overseeing the approval of shop drawings and execution plans.
  - Hands-on experience with BIM drafting and collaboration with internal departments to create site-specific BIM models.
- Deep Learning and AI Applications
  - Developed a deep learning model for predicting concrete slump, fine-tuning the model to ensure high accuracy, and deploying the solution using Docker for ease of use by non-experts.
  - Conducted research to enhance query-answering performance in the Korean construction domain using Retrieval-Augmented Generation (RAG). Fine-tuned multiple embedding models and created tailored training and testing datasets, significantly improving retrieval and reasoning capabilities.
- Software and Tools
  - BIM software (e.g., Revit) for drafting and reviewing construction designs.
  - Docker for deployment of machine learning models.
  - Deep learning frameworks.