

Jihoon Chung

CONTACT INFORMATION

Center for Architecture Science and Ecology
Rensselaer Polytechnic Institute
New York, United States

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RESEARCH INTERESTS

Computational Design / Building Information Modeling / Machine Learning
digital fabrication, 3D concrete printing, printing simulation analysis, spatial network analysis, parametric design, Internet of Things, interoperability, technical specification, deep learning, computer vision (object detection, facial recognition), natural language process (text classification)

EDUCATION

Rensselaer Polytechnic Institute, New York, United States

Ph.D., Architectural Science (Built Ecologies), August 2021 – Current

- Advisor: Dr. Dennis Shelden

Yonsei University, Seoul, Korea

M.S., Architectural Engineering (Construction IT), GPA: 3.97/4.0, February 2021

- Thesis: “Technical Specification Framework for 3D Concrete Printers”
- Advisor: Dr. Ghang Lee

Yonsei University, Seoul, Korea

B.Arch, Architecture (5-year program), February 2019

- Thesis: “Haebang-ro: Relationship between Haebang-chon and Yongsan Park”
- Advisor: Moongyu Choi, AIA & KIRA

National University of Singapore, Singapore

Exchange Program for two semesters in AY2017

Gunmyungwon (건명원), Seoul, Korea

Future New School of Humanities, Arts & Science, February 2016

RESEARCH & WORK EXPERIENCE

Center for Architecture Science and Ecology, New York

August 2021 – Current

Research Assistant

- Developed a monitoring system for indoor air quality based on BIM & IoT sensors
- Researched on web data system for building information interoperability

Saman Corporation, South Korea

February 2021 – August 2021

Researcher

- Planned application services using real-time data collected from IoT sensors on construction sites in a national research project 'Development of and digital twin platform for smart construction'
- Assisted to prepare kick-off meetings and presentations in a national research project 'XR Flagship Project (Construction part)'
- Wrote bills of quantities in a pilot design project on a box culvert organized by Korea Expressway Corporation

Building Informatics Group, Yonsei University

February 2018 – January 2021

Research Assistant

- Proposed a technical specification framework for 3D concrete printers through a systematic literature review and a Delphi study

- Developed a multi-dimensional classification algorithm for housing defect text data using BERT-based multitask learning technique (Recurrent Neural Network)
- Explored optimization algorithm for buildability of 3D concrete printing focused on operation planning and concrete properties

Yonsei University, South Korea

March 2019 – June 2020

Teaching Assistant

- Assisted an undergraduate course on the 'Engineering-Information Processing' in Semester 1, AY2020
- Managed a computer lab for undergraduate students and the research group's website in Semester 1, AY2019

ATEAM Ventures, South Korea

May 2015 – August 2015

Strategic Planning staff

- Planned strategies for marketing & sales and held a 3D-printer exhibition at KINTEX, Ilsan
- Installed a factory to assemble 3D-printers and managed mechanical components
- Managed all customer inquiries, wrote customer manuals, and sent thank-you letters to early customer

XbarX (X_X), South Korea

May 2014 – February 2015

Sales Director & Co-founder

- Launched a beer recommendation app and beer-distribution platform
- Got partnership with 218 beer pub, bar, and restaurant in Seoul, South Korea
- Got a shared 3rd award with a \$4,500 cash prize in 'The 3rd Chung Ju-young Start-up Competition' and funding, \$140,000 from a start-up accelerator

PUBLICATIONS

Lee, G., **Chung, J.**, and Kim, J. (2021) "On What Basis Should We Buy a 3D Concrete Printer?" *Building Construction*, 21(4), 31-34.

Chung, J., Lee, G., and Kim, J. (2021) " Framework for Technical Specifications of 3D Concrete Printers" *Automation in Construction*, 127, 103732, <https://doi.org/10.1016/j.autcon.2021.103732>

(*Submitted*) Woo, J., **Chung, J.**, and Koo, H. (2021) " A Study on the Pedestrian Route Choices and Accessibility in the Retail Areas after Acute COVID-19: Focused on the Peak Commercial Activity's Hours in the Mangwon District" *Journal of the Urban Design Institute of Korea*

Chung, J., Lee, G., Kim, J. and Choi, J. (2020) "A Comparative Analysis of the Classification System for Three-Dimensional Concrete Printers" *Korean Journal of Construction Engineering and Management*, 21(2), 3-14, <https://doi.org/10.6106/KJCEM.2020.21.2.003>

Chung, J., Lee, G., and Kim, J. (2020) "A Systematic Review of the Geographic and Chronological Distributions of 3D Concrete Printers from 1997 to 2020", *Proceedings of the 37th International Symposium on Automation and Robotics in Construction (ISARC)*, pp. 84-19, Kitakyushu, Japan, 27-28 Oct., <https://doi.org/10.22260/ISARC2020/0014>

Lee, G., Cho, J., Song, T., Roh, H., Jung, J., **Chung, J.**, Yong, G., and Jeong, D. (2020) "Construction Field Management Using a Popular Text Messenger" *Proceedings of the 18th International Conference on Computing in Civil and Building Engineering*, pp. 971-979, https://doi.org/10.1007/978-3-030-51295-8_67

Chung, J., Lee, G., and Kim, J. (2018), "Performance Evaluation Criteria for Building 3D Printing Focused on Concrete Properties", *Proceedings of the 2018 Annual Conference of the Korea Institute of Construction Engineering and Management*, pp. 27-29, South Korea, 9 Nov.

PATANT	Kim, J., Lee, G., Lee, D., Lee, J., Chung, J. (2020), “3D printer for construction with continuous printing on the go and 3D printing system comprising it”, Application Serial No. KR20200101482A, South Korea, https://patents.google.com/patent/KR20200101482A/ko	
HONORS & AWARDS	Research Assistantship Award for 2021-2023 academic year <i>Rensselaer Polytechnic Institute, New York</i>	August 2021
	The 17th Outstanding Thesis Competition , Honorable Mention <i>Architectural Institute of Korea, South Korea</i>	April 2021
	2019 Yonsei Startup Lab Contest (\$2,700) , Best Startup Award <i>Yonsei University, South Korea</i>	July 2019
	2018 KICEM Annual Conference , Excellent Paper Award <i>Korea Institute of Construction Engineering and Management, South Korea</i>	November 2018
	Academic Sholarship for four semesters <i>Yonsei University, South Korea</i>	March 2016 – September 2018
	The 12th Architectural Engineering Competition (\$900) , Excellent Award <i>The Korean Structural Engineers Association, South Korea</i>	September 2016
	Volunteer Full-Scholarship for two semesters <i>Dongbu Foundation, South Korea</i>	March & September 2016
	The 3rd Chung Juyung Startup Competition (\$4,500) , Excellent Startup Award <i>The Asan Nanum Foundation, South Korea</i>	August 2014
PRESENTATIONS	The 18th National Boxing Competition for Non-Athlete , The 1 st Prize <i>Korea Boxing Institution, South Korea</i>	August 2012
	Build an IoT monitoring system for your smart home <i>Virtual Black Families Technology Awareness Day 2022, New York</i>	February 12, 2022
SKILLS	Programming Languages: Python, JAVA, C#, C++, Javascript (Node.js, Three.js, Express.js), P5 Processing, SQL CAD/CAE: Rhino(+Grasshopper), Revit(+Dynamo), Sketchup, CATIA, AutoCAD, Midas Civil Design tools: Photoshop, Illustration, Indesign, Premiere Pro, Experience Design Machining: Arduino, Raspberry Pi, 3D printer, Laser Cutter Others: SPSS, Tensorflow(+Keras), Pytorch, Protégé	
LEADERSHIP EXPERIENCES	Project leader , Social Algorithm 7.0 Workshop <ul style="list-style-type: none"> Led a team project in an international online-workshop organized by Social Algorithm Research Group Analyzed spatial network using Rhino + Grasshopper with Python, and conducted on-site surveys for the validation Based on the analysis result, submitted a journal article to <i>Journal of the Urban Design Institute of Korea</i> 	August 2020
	Casting Director & Co-founder , We Ask, Korea <ul style="list-style-type: none"> Co-founded a conference-planning organization called '젊음이 묻습니다', gathering 100+ NGO-interested students Invited 30+ celebrities to have talks with students, such as Im Kwon-taek, Ko Un, Kim Jung-man, and so on 	January 2013 – September 2014

- Got sponsorships from publishers, theatres, and student councils to implement marketing plans

The 9th Chief Representative, Global Intelligence, Korea **January 2012 – July 2013**

- Directed a volunteer group consisting of 69 college students to organize mentoring programs for teenagers

VOLUNTEER EXPERIENCE

Y-Zone Project in STEM Alliance, New York **October 2021 – Present**
Bilingual (Korean/English) Volunteer Translator

Major Mentoring Program in Yonsei University, Korea **March 2019 – May 2021**
Architecture-Major Mentor

Architecture School in Junglim Foundation, Korea **August 2018 – October 2018**
Architecture Tutor

Global Volunteering Program in Dongbu Foundation, Vietnam **January 2017**
Student Volunteer

Student Volunteer Group in Dongbu Foundation, Korea **February 2016 – February 2017**
Volunteer & Scholarship Holder

Global Engineering Program in Yonsei University, Indonesia **August 2016**
Student Volunteer & Assistant Manager

Seoul Junghwa Secondary School, Korea **September 2012 – December 2012**
Speech Tutor

Seoul Soongduck Primary School, Korea **March 2012 – July 2013**
Speech Tutor

Kyoto International School, Japan **August 2012**
Korean Tutor

REFERENCES

Available upon request.