

Jihoon Chung

CONTACT INFORMATION

Center for Architecture Science and Ecology
Rensselaer Polytechnic Institute
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RESEARCH INTERESTS

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

EDUCATION

Rensselaer Polytechnic Institute, New York, United States

August 2021 – Current

Ph.D., Architectural Science

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

Yonsei University, Seoul, Korea

M.S., Architectural Engineering, 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

- Awarded four times of academic scholarship (AY2016–2018)

National University of Singapore, Singapore

Exchange Program for two semesters in AY2017

RESEARCH & WORK EXPERIENCE

Center for Architecture Science and Ecology, United States

August 2021 – Current

Research Assistant

- Researched on web data system for building information interoperability

Saman Corporation, South Korea

February 2021 – August 2021

Researcher

- Participated in a national research project 'Development of and digital twin platform for smart construction' and proposed application services using real-time data collected from IoT sensors on construction sites
- Design new types of engineering bridge drawings for Construction Information Modeling (CIM) software

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 defesct text data using BERT-based multitask learning technique
- 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

- 'Engineering-Information Processing' in Semester 1, AY2020
- Computer lab manager 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 Beer recommendation app and Beer-distribution platform
- Got partnership with 218 beer pub, bar, and restaurant in Seoul
- 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

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 2021-2022 academic year
Rensselaer Polytechnic Institute, United States

August 2021

The 17th Outstanding Thesis Competition, Honorable Mention
Architectural Institute of Korea, South Korea

April 2021

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| 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 |
| The 18th National Boxing Competition , The 1 st Prize <i>Korea Boxing Institution, South Korea</i> | August 2012 |

SKILLS

Programming Languages: Python, JAVA, C#, C++, SQL, HTML
CAD/CAE: Rhino(+Grasshopper), Revit, CATIA, AutoCAD, Sketchup, Midas Civil
Design tools: Photoshop, Illustration, Indesign, Premiere Pro
Machining: 3D printer, Laser Cutter, Arduino
Others: SPSS, Tensorflow(+Keras), Pytorch, Protégé

LEADERSHIP EXPERIENCES

- Project leader**, Social Algorithm 7.0 Workshop **August 2020**
- 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 *Journal of the Urban Design Institute of Korea*
- Casting Director & Co-founder**, We Ask, Korea **January 2013 – September 2014**
- 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
 - 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

- 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

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| Student Volunteer Group in Dongbu Foundation, Korea <i>Volunteer & Scholarship Holder</i> | February 2016 – February 2017 |
| Global Engineering Program in Yonsei University, Indonesia <i>Student Volunteer & Assistant Manager</i> | August 2016 |
| Seoul Junghwa Secondary School , Korea <i>Speech Tutor</i> | September 2012 – December 2012 |
| Seoul Soongduck Primary School , Korea <i>Speech Tutor</i> | March 2012 – July 2013 |
| Kyoto International School , Japan <i>Korean Tutor</i> | August 2012 |

REFERENCES

Available upon request.