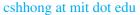
Chloe (Soo hwa) Hong









RESEARCH INTERESTS

Computational Design, Computational Geometry, Generative Models, Reinforcement Learning, Optimization, Fabrication

EDUCATION

Massachusetts Institute of Technology

Cambridge, MA

• Ph.D. in Building Technology | GPA: 5.0 / 5.0

Sep. 2023 - Present

Advised by Prof. Caitlin Mueller (Digital Structures)

Carnegie Mellon University

Pittsburgh, PA

• M.S. in Computational Design | GPA: 4.03 / 4.3

Sep 2021 - May 2023

Advised by Prof. Daniel Cardoso Llach, Prof. Chris McComb

Seoul National University

Seoul, South Korea

• College of Liberal Studies (Presidential Award) B.Arch, BBA | GPA: 4.07 / 4.3

Mar 2014 - Feb 2020

PUBLICATIONS

Adaptation and Challenges in Human-AI Partnership for the Design of Complex Engineering Systems

Zeda Xu, Chloe Hong, Nicolás F. Soria Zurita, Joshua T. Gyory, Gary Stump, Hannah Nolte, Jonathan Cagan, Christopher McComb International Design Engineering Technical Conferences and Computers and Information in Engineering Conference (ASME IDETC-CIE) 2023

Building Hanok Components & Techniques

 Jeon BongHee, Kim Jihee, Hong Soohwa, Chae Uri, Kwon Ah-song South Korea's Architecture and Urban Institute (AURI) 2017

ACADEMIC SERVICES

• NeurIPS Creative AI Track Reviewer

2024

SELECTIVE COURSEWORK

MIT 6.S978: **Deep Generative Models** *Prof. Kaiming He*

Z Reinforcement Learning as Probabilistic Inference

MIT 4.450: Computational Structural Design and Optimization Prof. Caitlin Mueller

Learning High-Performing Designs Across Topologies

MIT 6.7960: **Deep Learning** *Prof. Philip Isola*

MIT 6.5320: **Geometric Computing** *Prof. Piotr Indyk*

L Efficient Agglomerative Hierarchical Clustering using Locality Sensitive Hashing

MIT 18.085: Computational Science and Engineering Prof. David Kouskoulas

CMU 24679: Statistical Techniques in Robotics / Deep Reinforcement Learning Prof. David Held

Comparison and Modification of RL Agents for Parking

CMU 15387: Computational Perception Prof. Tai Sing Lee

CMU 24679: **Designing and Deploying AI/ML Systems** *Prof. Chris McComb*

CMU 15281: Artificial Intelligence: Representation and Problem Solving Prof. Stephanie Rosenthal

CMU 24354: Gadgetry - Sensors, Actuators and Processors Prof. Douglas Weber

Sensor based Dynamic Projection Mapping

CMU 15122: Principles of Imperative Computation

AutodeskSan Francisco, CAResearch InternMay 2022 - Aug 2022

 ZevitAssembly
 I developed a pipeline to create 3D model datasets with user-generated procedural information that can support ML-based systems for design data exchange on the cloud platform, Forge. I use a novel approach to extract user annotations of dimensions and geometric constraints from Revit 3D models and output a graph representation of the topology and shape.

Carnegie Mellon University

Pittsburgh, PA

Research Assistant

Sep 2021 - May 2022

Human-Centered Computer Systems Lab, Seoul National University

Seoul, South Korea

Research Intern

Apr 2021 - Aug 2021

• <u>I Bidirectional Telepresence</u> I proposed a human-centered system for telepresence that integrates sensing user attention through gaze and matching coordinates of two different spaces based on body position and spatial functionality.

Architecture History Lab, Seoul National University

Seoul, South Korea

Research Intern

Dec 2016 - Apr 2017, Apr 2021 - Aug 2021

- La Building Hanok Components & Techniques

 I created a glossary and translation for the book 'Building Hanok Components & Techniques', published by South Korea's Architecture and Urban Institute (AURI). Based on historical archives, I document the components and building process for the traditional Korean building typology, Hanok, while establishing terminology for the distinct structural wooden joinery based on their functions and geometry, and processes for assembling and crafting building components only previously passed down through apprenticeship.
- <u>Lanok</u>, Korea's traditional building typology, in BIM software.

Lab for Architecture Culture, Seoul National University

Seoul, South Korea

Research Intern

Jan 2017 - Dec 2020

o Architecture Practice I developed computational tools to facilitate the design and fabrication for private galleries, residentials the *Venice Architecture Biennale* (2018), *Venice Art Biennale Korea* exhibition space (2019), *Hyundai Outlet Mall* (2019), and *Hyundai Motors Future Lab* (2020) (with *Herzog de Meuron*).

AWARDS

• Kwanjeong Educational Foundation Graduate Scholarship One of 40 recipients to be funded for doctoral studies.	2023-2025
• South Korea National Graduate Scholarship One of 64 recipients rewarded by the South Korean government.	2021-2023
• Carnegie Mellon University Merit Scholarship • Merit-based scholarship for the entirety of master's degree awared upon admission	2021-2023
SNU Presidential Dean's Award Awarded as the class representative for the class of 2020 College of Liberal Studies	2020
SNU Merit Scholarships Merit-based Scholarship National Scholarship for Science and Engineering	2014-2015 2015-2017
Eminence Scholarship	2017-2020

SKILLS

- Languages: Python, C/C++, Julia, MATLAB
- Frameworks: PyTorch, Tensorflow & Keras
- 3D software: Rhino, Grasshopper, Unity, Adobe Design Suite
- **Prototyping**: 3D printing, CNC milling, Laser cutting