

# Xiaoyun (Margaret) Zhang

Address: 55 Porter Road, Cambridge, MA | xiaoyunz@mit.edu

## EDUCATION

- Massachusetts Institute of Technology**, Cambridge, MA **Fall 2022 - Present**  
PhD Candidate in Architectural Design and Computation
- Massachusetts Institute of Technology**, Cambridge, MA **Fall 2019 - Spring 2021**  
Master of Science in Architectural Studies, Design Computation Group. GPA 4.8
- University of Notre Dame**, Notre Dame, IN **Fall 2012 - Spring 2019**  
Bachelor of Architecture, Architectural Practice and Enterprise Concentration, Cum Laude. GPA 3.810  
Thesis: Grand Theater of Dunhuang Art: Reliving the Arts in Architecture,  
Top 1 Undergraduate Thesis Award.  
Master of Architectural Design and Urbanism, GPA 3.867  
Thesis: Institute of Dunhuang Arts: Architecture Heritage and its Roles in a Modern Metropolis,  
Top 1 Graduate Thesis Award.

## RESEARCH EXPERIENCES

- Research Assistant for Architecture, Representation and Computation Group** **Fall 2019 - present**  
Massachusetts Institute of Technology  
Roles: Mesh Model Repairing Specialist, Visualization, Interactive Environment and Game Developer
- Digital Visualization and Virtual Reality Experience of World Heritage Site** **Spring 2020 - present**  
*Interactive Web and VR Application*, in collaboration with Boston Museum of Fine Arts
- Code WebSIS application for virtual museum experience of the East Asian Wings.
  - Design a VR application for showcasing 7 ancient Buddhist statue collection at the Temple Room.
  - Digitally recreated photorealistic coloration and lighting condition of the two major structures in Horyu-Ji.
  - Develop AR interactive app of representing temple architecture in Kyoto on Android and IOS platforms.
- Interactive Architecture Visualization of Alvar Aalto's House** **Fall 2019**  
*Exhibition*, in collaboration with Alvar Aalto Foundation
- Repaired meshes of the Photogrammetry house model, interior and exterior, in 13 parts total.
  - Participated in developing AR application for Architect Alvar Aalto's House Exhibition in Tokyo, Japan.
  - Digitally recreated coloration and lighting condition of the two major structures of World Heritage Site.
- Researcher, Digital Historic Architectural Research and Material Analysis Team** **Summer 2015 - present**  
DHARMA Team, University of Notre Dame  
Roles: Conventional and Digital Visualization Specialist
- Evolution of the Cortile del Belvedere** **Fall 2018, Summer 2020**  
*Exhibition*, in cooperation with the Vatican Museum
- Created six watercolor plates of the evolution of Cortile for the exhibition at the Bibliotheca Herziana, Rome.
  - Direct a three-minute movie of the Cortile del Belvedere for the Vatican Museum.
- Interactive Application for Architecture Monuments in the Roman Forum** **Summer 2020 - present**  
*Mobile Application*, in cooperation with Soprintendenza Speciale per i Beni Archeologici di Roma.

- Create digital models of temples and basilicas in the Roman Forum according to 3D scan and Gigapan photos.
- Research historical building conditions and reconstructions according to scans and documentation.
- Collaborated with computer scientists and architecture historians at the University of Notre Dame.

### **Preservation and Documentation of Taj Mahal**

**Summer 2015**

*Digitalization*, in cooperation with the Archeological Survey of India

- Documented and created digital files for the main mausoleum for the Archeological Survey of India.
- Surveyed crafters' markers on paving stones of the site and marble damage on the mausoleum facades.

### **Personal Projects**

**Fall 2019 - present**

Massachusetts Institute of Technology

### **Dynamic Texture: Exploring Shader Opportunities in Interactive Architecture Visualization**

**Fall 2020**

*Digital Visualization*, MIT 4.566 Advanced Topics in Digital Media

- Analyzed weathering effects on surfaces and interpret the generation process in OpenGL and ShaderLab.
- Explored a pipeline for baking and sampling High Dynamic Range texture for architecture mesh models.

### **Axial Progression and Spatial Quality in Chinese Palace Designs**

**Summer 2020**

*Writing in progress*, continuation of two architectural design theses

- Developed a visualization method for geometric and numeric qualities of rectangular spacial sequence.
- Applied this methods on two personal design theses of building complex design in Beijing.

### **Custom Gesture and Movement Recognition for Cooking Knife Skills**

**Spring 2020**

*Physical Setup*, MIT 6.835 Intelligent Multimodal Interfaces

- Created game engine based application to project interactive digital cutting template to physical surface.
- Coded interactive program using LeapMotion and Unity 3D APIs.

### **Personal Projects**

**Summer 2013 - Spring 2015**

University of Notre Dame

### **A Comparative Urban Analysis of Ragusa, Sicily**

**Spring 2015**

*On-site documentation and analysis*, funded by Nanovic Institute for European Studies

- Traveled to Ragusa for on-site sketching and documenting urban sequences.
- Studied Baroque architecture built on an Islamic urban structure.

### **Urban Analysis of Renaissance Central Rome**

**Winter 2015**

*On-site documentation and analysis*, funded by Nanovic Institute for European Studies

- Launched a one-month documentation and analytic studies on Roman City sequences.
- Produced hand-drawn diagrams, detailed studies, perspective views, etc.

### **Musical Harmony in Traditional Chinese Architecture**

**Summer 2013**

*On-site documentation and analysis*, funded by the Center of Undergraduate Scholarly Engagement

- Visited and Studied structure and symbolism of the Temple of Heaven in Beijing.
- Composed a twenty-paged paper comparing Classical Chinese Music composition with architectural forms.

## **TEACHING EXPERIENCES**

Teaching Assistant, MIT 4.117 Embodied Computation

**Spring 2020**

Teaching Assistant, MIT 4.021 How to Design	Fall 2019
Teaching Assistant, Sophomore Architecture Design Studio, University of Notre Dame	Spring 2019
Teaching Assistant, Structural Design for Architects, University of Notre Dame	Spring, Fall 2018
Choreography Instructor, Chinese Culture Association, University of Notre Dame	Spring 2016
Teaching Assistant, Graphics I: Drawing, University of Notre Dame	Fall 2015

## WORKING EXPERIENCES

**Duncan Stroik Architect, South Bend, IN** Summer 2019  
*Professional Internship*

- Designed and interiors and architectural details for a religious projects in Michigan and Florida.
- Produced perspective drawings for visualization, participated in producing construction documents.

**Baldauf Catton Von Eckartsberg Architects, San Francisco, CA** Summer 2016  
*Professional Internship*

- Participate in retail, residential design projects in Irvine, CA, and San Francisco International Airport.
- Produced conceptual design drawings for a shopping mall renovation.

## HONORS

<b>Presidential Fellowship Award, MIT</b>	Fall 2022
<b>Teaching Assistant Fellowship, MIT</b>	Fall 2019 - Spring 2020
<b>Alberti Award, Top one GPA graduate, University of Notre Dame</b>	Spring 2019
<b>Tau Sigma Delta Honors Society, University of Notre Dame</b>	Spring 2019
<b>Ferguson and Shamamian Awards, Top graduate thesis, University of Notre Dame</b>	Spring 2019
<b>Noal Blank Design Awards, Top undergraduate thesis, University of Notre Dame</b>	Spring 2017
<b>Frank Montana Rome Scholarship Award, Winner</b>	Spring 2014
<b>The Berkeley Undergraduate Prize for Design Excellence, Semi-finalist</b>	Spring 2014

## SKILLS

**Graphics and Modeling:** Free-hand drawing (pencil and pen), Watercolor sketching and rendering, 3DS MAX, Metashape, Adobe series.

**Game Engine:** Unity 3D.

**CAD Software:** AutoCAD, Revit, Rhino 3D, Grasshopper.

**Programming Language:** C#, Python, Javascript, C++.