CHIA HUI YEN

hyChia88.github.io | +1(412) 579 0806 | huiyenc@andrew.cmu.edu

EDUCATION

CARNEGIE MELLON UNIVERSITY May 2026
Master of Science in Computational Design **Pittsburgh, PA, USA**
Relevant Courses: Inquiry into Computational Design, Data Structures for Application Programmers, Introduction to Deep Learning, Web Applications Development

TSINGHUA UNIVERSITY June 2024
Bachelor of Architecture **Beijing, China**
Relevant Courses: Calculus A(1), Computer Aided Architectural Design Method, C++ Programming, Architectural Mathematics, Structural Engineering and Building Structure

RELEVANT EXPERIENCE

Architectural Robotics Research Assistant September 2024–December 2024
School of Architecture, Carnegie Mellon University **Pittsburgh, PA, USA**

- Research and proposed design for customized ***3D binder jet printer with robotic arms based on Arduino and industrial print head*** specifically for processing construction and demolition (C&D) fines, optimizing printing efficiency.

Research Assistant December 2023–May 2024
Department of Building Science and Technology, Tsinghua University **Beijing, China**

- Engineered a pipeline for woven structures using ***Kangaroo, Grasshopper, and Python***, enabling efficient prototyping and large-scale simulations. Transformed 2D metal pipes into complex 3D-curved forms, integrating 3d-twisted metal rods and metal water pipe systems for a few 4m × 4m × 3m digital fabrication installations.

Intern Architect May 2023–August 2023
MAD Architects **Beijing, China**

- Optimized parametric design and industrial-scale construction by automating the paneling workflow for irregular geometries using ***Rhino and Grasshopper,*** reducing material waste and construction complexity by eliminating intricate edge panels while enhancing visual coherence.

Virtual Space Designer July 2022–Feb 2023
AEON Labs **Beijing, China**

- Created virtual spaces based on Web 3.0 context, including an interactive VR showroom for commercial brands, using ***Unreal Engine and Blender*** for model creation.

PROJECT EXPERIENCE

Build by Motion | *Carnegie Mellon University* January 2025

- Developed an interactive design experiment using the Model-View-Controller (MVC) framework, integrating ***OpenCV for gesture capture and recognition.*** Explored interaction methods and designed a ***custom 3D-to-2D projection*** by deriving mathematical formulas.
- Implemented the ***Catmull-Clark subdivision algorithm*** to generate smooth geometry, enhancing interaction quality.

Weaving Structure Optimization | *Tsinghua University* January 2025

- Explored human-centered design approaches and completed an advanced automated systems development, including ***Python-based optimization algorithms*** and ***automation machines,*** helped reducing installation time by over 33% in real-world complex weaving structure installation.
- Developed a ***C++ program*** to control and manage serial communication between electronic component***s (Inkjet Printhead Controller, Arduino, stepper motors, encoders, etc.***) and built an automated rod labeling machine from scratch as part of the automated systems development.

AWARDS & SCHOLARSHIP

Carnegie Mellon University Architecture Merit Scholarship 2024-2025
Tsinghua University-Malaysia Outstanding Undergraduate Students Scholarship 2018-2023

SKILLS

Programming language: Python, Java, HTML, CSS
Frameworks & Tools: Adobe Creative Suite, Blender, Arduino, AutoCAD, Rhinoceros 3D, Grasshopper 3D, Kangaroo, Unity, SketchUp, OpenCV, Django, Pytorch
Expertise: Digital Fabrication, Automation, 3D printing, Computational Design, 3D Modeling, Generative Modeling
Languages: English (IELTS 7.5), Chinese, Malay, Cantonese