CHIA HUI YEN

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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, combining ***Arduino and industrial printhead*** for processing construction and demolition (C&D) fines, optimizing print efficiency.

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

- Developed a computational pipeline for woven structures using ***Kangaroo, Grasshopper, and Python,*** enabling efficient prototyping and transforming 2D metal pipes into complex 3D-curved forms for large-scale fabrication.
- Bridged computational design with real-world fabrication, collaborating with teams to optimize installation processes and integrate 3D-twisted metal rods and metal pipe systems into 4m × 4m × 3m installations.

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

- Optimized parametric design and industrial-scale construction by computerizing paneling workflow for irregular geometries in ***Rhino + Grasshopper 3d,*** reducing material waste and construction complexity by eliminating intricate edge panels while enhancing visual coherence.

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

- Developed ***Web 3.0-related content,*** 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 leveraging the Model-View-Controller (MVC) framework, plus ***OpenCV for gesture capture and recognition.*** Engineered ***custom 3D-to-2D projection algorithm*** by deriving mathematical formulas.
- Implemented the ***Catmull-Clark subdivision algorithm*** to generate smooth geometry, enhancing interaction quality.

Weaving Structure Optimization | *Tsinghua University* January 2025

- Applied ***human-centered design principles*** from firsthand installation experience to identify inefficiencies in weaving structure assembly, leading the development of ***automated fabrication solutions*** that enhanced scalability, precision, and streamlined complex workflows.
- Developed automated fabrication system using ***Python- based data-driven structural analysis*** to optimize the installation sequence of bending-active weaving structures. Implemented ***C++-based serial communication*** to control Inkjet Printhead Controllers, Arduino, stepper motors, and encoders, ***reducing installation time by over 33%*** in real-world applications.

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, JavaScript
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