

CHIEN-HUA HUANG
M.Arch. B.Eng.

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PROFESSIONAL EXPERIENCES

- Since 2022 CTO and Co-founder at Turn-Motion FlexCo, Vienna, Austria
- 2022 - 2024 Immersive Developer at Arup, London, UK
- 2020 - 2022 Teaching Assistant at Institute of Intelligence and Systematics, School of Design and Innovation, China Academy of Art, Hangzhou, China
- 2017-2021 Architect and Researcher at [applied] Foreign Affair Lab, University of Applied Arts Vienna, Austria
- 2020 Technology Assistant at Greg Lynn Studio, University of Applied Arts Vienna, Austria
- 2018 Project Architect at Suzhou Architectural Technology LTD., Suzhou, China
- 2017 Architectural intern at Hsieh Ying-Jun Architects (Atelier 3), Taiwan and Helsinki, Finland
- 2017-2018 Architectural intern at Arata Isozaki + Huqian Associates, Shanghai, China
- 2014-2015 Junior architect at TMA Architects & Associates, Taipei, Taiwan

EDUCATION

- 2017-2020 **MArch.** Master of Architecture with Distinction, University of Applied Arts Vienna; Greg Lynn Studio, Institute of Architecture
Thesis: *Reform Standard*
Supervisor: Greg Lynn
Examiners: Hani Rashid, Karin Raith, Mario Carpo, Klaus Bollinger, Brian Cody, Christina Diaz Moreno, Efren Garcia Grinda, Matthias Boeckl
- 2010-2014 **B.Eng.** Bachelor of Engineering in Architecture, (*1st Class Honors, RIBA Part 1*), University of Liverpool
Thesis: *Shifting Narratives*
Supervisor: Claudia Westermann.

LIST OF PUBLICATIONS

Conference Proceeding

- 2021 Chien-hua Huang. (2021) Reinforcement Learning for Architectural Design-Build - Opportunity of Machine Learning in a Material-informed Circular Design Strategy. Proceedings of the 25th International Conference of the Association for Computer-Aided Architectural Design Research in Asia, Hong Kong. pp. 171-180

Book Chapter

- 2020 "Temporary and Permanent: The Invisible Structures". In *Structure of Displacement*. Ed. By Baerbel Mueller, Frida Robbles, Institute of Architecture, University of Applied Arts Vienna. Basel: Birkhäuser. Pp 222-251. DOI: <https://doi.org/10.1515/9783035623055-006>

TEACHING EXPERIENCE

China Academy of Art - Institute of Intelligence and Systematics, School of Design and Innovation, Bachelor level, Industrial Design and Cross-disciplinary Design

Lecture and design studio: “Third Ecology”: digital fabrication (Unity, ML-Agents, RhinoCam for CNC), 3d/week, spring semester 2021 with Yating Su, Chao Zhen.

Lecture and design studio: “Re/De-standard Glass”: digital fabrication (Unity, ML-Agents, RhinoCam for CNC), 3d/week, spring semester 2021, with Gensler Shanghai, with Yating Su, Chao Zhen.

Lecture and exercise: “Multisensory Design” 1d/week, spring semester 2021, with Yao Yi.

Lecture and design studio: “Reform”: from digital design to fabrication (Photogrammetry, Unity, Grasshopper, Rhinoceros), 3d/week, autumn semester 2020, with Yating Su, Chao Zhen.

Brandenburg University of Technology, Germany

2023 AI-Aided Architectural Fabrication Symposium (AIAAF)

Workshop: “Reinforcement Learning in Unity”, 1d/week (total: 4 days), May, 2023

2021 ACADIA Workshop

Workshop: “Collaborative AI: AI + Human Form”, 2 days, September, 2021, with Zach Beale

2021 eCAADe Workshop

Workshop: “Collaborative AI”, 2 days, September, 2021

2022 CAADRIA Workshop

Workshop: “Collaborative AI”, 3 days, April, 2022

RESEARCH EXPERIENCE

- 2021 “Spatial Gulam Structure” **Digital Future Workshop**, ITECH Stuttgart + Tongji University, (Co-)Supervisors: Philip F. Yuan, Achim Menges, Hans Jakob Wagner, Hua Chai, Tim Stark
- 2021 “AI in+form: Bio-inspired Solar Designs in Architecture” **CAADRIA 2021 Workshop**, UCL, Supervisor: Provides Ng, Alberto Fernandez, Baha Odaibat, David Doria
- 2020 “Digital robotic arm in Unity for item retrieving and placing via ML-Agents.” **Smart Collaborative Robotic Agents Workshop**, DigitalFuture and MIT, Supervisor: Diego Pinochet.
- 2019 “Intelligent Fog: an interactive system based of human skeleton detection via Machine Learning” **[Human : Computer] INTERFACE: MATERIAL Workshop**, (Co-)Supervisors: Barbara Imhof, Daniela Mitterberger, Martin Gasser, Tiziano Derme.
- 2019 “Plan trajectory of UR3 robotic arm to procedurally construct a wireframe structure composed of wooden sticks with various lengths” **Fabrication-informed Design of Robotically Assembled Structures**, (Co-)Supervisors: Stefana Parascho, Yijiang Huang, Caitlin Mueller, Grey Wartinger.
- 2019 “Resilience: Urban farming for post-tsunami community” **XLab Tokyo**, Japan. (Co-)Supervisor: Neil Denari, Hitoshi Abe, Toshiki Hirano.

- 2018 “Implementation of supervised learning and unsupervised learning system in Grasshopper” **Deep Learning Creative AI Workshop**, Nonstandard Studio(NNS) and University of Applied Arts Vienna, Vienna, Supervisor: Daniel Bolojan.
- 2018 “Apply CFD (Millepede) analysis to construct a package enabling procedural shell structure optimization” **Procedural Modelling Workshop**, by Co-de-iT and University of Applied Arts Vienna, Vienna, Supervisor: Alessio Erioli
- 2018 “Design and fabrication with KUKA robotic arms to sculpture with Styrofoam” **Robots Rulings Workshop**, Angewandte Robotics Lab, Vienna, Supervisor: Philip Hornung.
- 2017 “On-site digital synchronization and prediction to construction” **Lightweight Steel Construction Workshop**, Nantou, Taiwan, Supervisor: Ying-Jun Hsieh.

EXHIBITIONS

- 2024 Interconnected Heart, Vatican
- 2024 Personal Structure, Venice, Italy
- 2020 Solo Exhibition “Reform Standard” for MAK CREATIVE CLIMATE CARE Pop-Up Exhibitions 3, Museum of Applied Arts Vienna, Austria. Curator: Marlies Wirth, Curator Digital Culture, Curator MAK Design Collection
- 2019 Structures of Displacement, Die Angewandte Vienna, Austria
- 2018 Angewandte Exhibition: From Point to Paper, Die Angewandte Vienna, Austria
- 2015 RIBA President’s Medals Student Exhibition, London, UK
- 2014 International Generation, Suzhou Cultural Center, Suzhou, China
- 2014 Venice Biennale British Pavilion, Venice, Italy

AWARDS

- 2022 Research Award of the Federal Chamber of Civil Engineers (Forschungspreis der Bundeskammer der ZiviltechnikerInnen)
- 2021 Jury Top Pick, BLT Built Design Award, for “New Guabuliga Market”.
- 2020 Winner 2020: Discovery of the Year - Architecture MasterPrize™, for “New Guabuliga Market”.
- 2020 Fred Adlmüller International Student Grant, University of Applied Arts Vienna, 1.500EUR.
- 2014 Best Overall Academic Performance **and** Best Performance in Final Year Project, Xi’an Jiaotong – Liverpool University, Suzhou, China

SERVICES

- Since 2021 Reviewer for CAADRIA.
- 2021 Reviewer for *International Journal of Architectural Computing*(IJAC).
- 2021 Reviewer for *The Journal for Artistic Research* (JAR).

INVITED TALKS

- 2021 New European Bauhaus Goes Digital, Online, Topic: Reform Standard Toolkit.

- 2021 Green Building Solutions, ZOOM, Vienna, Topic: Reform Standard and Machine Learning For Material Processing.
- 2021 AI-Aided Architectural Fabrication Symposium (AIAAF), ZOOM, Brandenburg University of Technology, Germany Topic: Reinforcement Learning and Architectural Design Build.
- 2020 MAK Design Nite 2020: Vienna Design Week, Museum of Applied Arts Vienna, Topic: Zero Waste – Circular Design
- 2020 Tour guide at MAK: Vienna Design Week, Museum of Applied Arts Vienna
- 2020 DigitalFuture Young: Artificial Intelligence I, Tongji University, Topic: Reform Standard through Artificial Intelligence

SKILLS

Unity3D

MLAgent, OpenCV, Azure Kinect.

Software

Rhino3D, Grasshopper, Maya, 3ds Max, Zbrush, Blender, RhinoCAM, OpenSim, Revit, ArcGis (Online, Desktop), Adobe Creative Suite (PR, ID, AE, PS, AI), Keyshot, Vray, MS Office, VR (Oculus Quest)

Programming

Python (OpenCV, scikit image, Keras, Tensorflow), Git/GitHub, C#, OpenCV, Processing (Java).

Fabrication

CNC mill (with RhinoCam), 3D Print (Cura), 3D Scanning (Photogrammetry), Knife Cutter (ZÜND S3 L-1200 Cutting Plotter), laser cutter

LANGUAGES

Mandarin

Native

English

Fluent (C1)

German

Basic (A2)