

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

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born: 4 September 1991 / Taipei

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.

PROFESSIONAL EXPERIENCES

Since 2020 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

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: “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

2021 AI-Aided Architectural Fabrication Symposium (AIAAF)

Workshop: “Reinforcement Learning in Unity”, 1d/week (total: 4 days), May, 2021

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

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.

Ongoing Research Projects

- NEST_AIL** Recycled-plastic-based exhibition system and material research and structural parametric modelling package. Supported by Angewandte Innovation Lab and Institute of Architecture, University of Applied Arts Vienna.
- Damascus_Dialogues** Data matching and training of targeted item in city google street images via semantic segmentation of MASK_RCNN. Supported by [applied] Foreign Affairs, University of Applied Arts Vienna and Damascus University.

EXHIBITIONS

- forthcoming Artists Exhibition “New Material: Regenerate Sustainability”, Austrian Pavilion, Dubai EXPO, UAE. Curator: Ruth Mateus-Berr, Georg Russegger
- 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

- 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

- 2021 Reviewer for CAADRIA.
- 2021 Reviewer for *The Journal for Artistic Research (JAR)*.

INVITED TALKS

- 2021 New European Bauhaus Goes Digital, Microsoft Team, 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, 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: 2016 Toefl iBT: 103)

German

Beginner (A1.2)

REFERENCES

Greg Lynn, Professor

Greg Lynn Studio, Institute of Architecture, University of Applied Arts Vienna

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1010 Wien

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[applied] Foreign Affairs, Institute of Architecture, University of Applied Arts Vienna

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