

ZIXUN HUANG

(510)-714-6230 ♦ Berkeley, CA, United States

huangzixun.com ♦ zixun@berkeley.edu

SUMMARY

Zixun Huang is a graduate computer vision researcher in **FHL Vive Center** @ University of California, Berkeley, works closely with **Professor Allen Y. Yang**. Prior to this, he obtained his Bachelor of Architecture from Zhejiang University and gained experience in the AEC industry. At present, his research primarily revolves around Machine Perception, 3D Scene Understanding, and Multi-Modality.

EDUCATION

University of California, Berkeley

CA, United States

GPA: 4.0 (CS-related) / 4.0 | Master of Design in **Human-AI Interaction**

Dec. 2023 expected

- *Relevant Courses:* CS280 Computer Vision, CS282 Deep Neural Network, CS294-026 Computational Photography, CS294-196 GenAI & LLM, CS285 Reinforcement Learning, CS294-137 Immersive Computing
- *Thesis:* Universal AR-Enhanced Interface for ROS: Enabling Multi-Type Robot Control
- *Awards:* MDes Distinguished Scholar Award; MIT Reality HACK 2023 Winner - Spatial Audio Track

Zhejiang University

Zhejiang, China

GPA: 3.99 (Math-related) / 4.0 | Bachelor of Engineering in **Architecture**

Jun. 2020

- *Activities:* Co-Founded Robotic Fabrication Lab; Excellent in SRTP (*Student Research Training Project*); ZJU Merit-based Scholarship

RESEARCH EXPERIENCE

Lead Graduate Researcher

Sep. 2022 - present

FHL Vive Center for Enhanced Reality, supervised by Dr. Allen Y. Yang

University of California, Berkeley

- Supervising over 5 EECS students to achieve a comprehensive digital-twin tracking dataset featuring moving robots and diverse depth sensors: Microsoft Azure Kinect, iPhone LiDAR, ZED Camera.
- Collaborating closely with the UI/UX and robotics teams to develop a universal AR interface on HoloLens for robot controlling.
- Lead-Authored the paper of DTTD2: Robust Digital-Twin Localization via An RGBD-based Transformer Network and A Comprehensive Evaluation on a Mobile Dataset. [[arXiv preprint](#)]
- Led the development of DTTDNet: a 3D object localization algorithm; achieved SOTA accuracy on multiple datasets; conducted over 25 recorded ablation experiments. [[code](#)]
- Calibrated optical motion tracking system and camera system; collaborated to build a novel RGBD dataset specific to iPhone LiDAR with ARKit; Achieved over 13k frames' annotation using optical motion tracking system and programmed Python & C++ toolkits.

Graduate Researcher

May. 2023 - Sep. 2023

XR Lab - Immersive Design Student Club, supervised by Prof. Luisa Caldas

University of California, Berkeley

- Co-First authored a VQAE-based method for residential buildings' latent embedding and clustering. [[ICCVW 2023](#)]
- Reduced the computation time by 133.7 times for NYC's residential energy consumption estimation.

Research Assistant

Jun. 2021 - present

Architectural Intelligence Group, supervised by Prof. Hao Zheng

City University of Hong Kong

- Designed and implemented an urban data mapping and learning-based simulation system from 0 to 1.
- Reduced the average time cost for urban quantitative analysis from 3 days to 3 seconds per designer by developing automatic pipelines.
- Led over 100 designers with urban data crawling and Pix2pixHD model training for multiple urban sense simulation.
- First-Authored a learning-based urban research: Can Machine Learning Uncover Insights into Vehicle Travel Demand from Our Built Environment? [*in submission to Cities*]

Research And Teaching Assistant, Robot Laboratory Lead

May. 2019 - Jun. 2020

College of Civil Engineering and Architecture

Zhejiang University

- *Assisted teaching in undergrad courses:* (1) Architectural Robotics (2) Computational Design & Robotic Fabrication
- Developed a rapid 3D clay printing system using high-torque stepper motors, Arduino, C programming, Grasshopper, KUKA PRC, and Rhino3D; enabled robotic 3D printing on quadric surfaces.
- *Publication:* (1) Fabrication of Topology Optimized Concrete Components Utilizing 3D Printed Clay Mould; (2) Robotic Fabrication of Sustainable Hybrid Formwork with Clay and Foam for Concrete Casting. [[IASS 2019](#), [SiGraDi 2020](#)]

SKILL SETS

<i>Languages:</i>	Python, C/C++, Java, Shell Script, C#, JavaScript, HTML, CSS, Swift, LaTeX
<i>Frameworks & Tools:</i>	PyTorch, OpenCV, Open3D, ARKit, Django, React, Git, Node.js, Nginx, AWS, MySQL, Android Studio.
<i>3D Modeling Tools:</i>	COLMAP, Nerfstudio, Grasshopper, Rhinoceros, Unity, Unreal Engine, Blueprints, Blender.
<i>Design Tools:</i>	Figma, Adobe Creative Suite (PS, AI, ID, PR), AutoCAD, ArcGIS.
<i>Hardware:</i>	Optical Motion Tracker, Microsoft Azure Kinect, ZED Stereo Camera, KUKA Robots, Raspberry Pi, Arduino.

WORKING EXPERIENCE

3D Software Engineer, Server-end Development Lead

Jun. 2021 - Apr. 2022

INSOME Technology Co. Ltd

Shenzhen, China

- Developed a modular building information management (BIM) system from 0 to 1; Enabled efficient and scalable structure customization with real-time 3D visualization; Achieved an immersive user experience built on Android using Unreal Engine and Blueprints.

Product & Technology Development Lead

Jan. 2021 - Jun. 2021

Hezhu Digital Technology Co. Ltd

Shanghai, China

- Led and prototyped an urban sustainability mapping system from 0 to 1; Enabled cost management and carbon emission optimization for urban design evaluation; Specified application into launched urban planning projects.

Robotics Engineer Intern

Jan. 2019 - May. 2019

RoboticPlus.AI

Shanghai, China

- Designed and fabricated the **China's first** all-carbon fiber pavilion; Achieved the 4 meters high and 3.8 meters wide entire structure weaved with a continuous line of carbon-fiber. Density of the structure is controlled at 18KG per cubic meter and the bearing capacity of 400kg is achieved. [press: [archdaily](#), [domus](#), [goood](#)]
- Collaborated with architects on a carbon-fiber weaving and resin curing system using KUKA Robots and programmable 3D modeling.
- Programmed the robotic weaving path and ran the simulation for the robotic construction on 40% modules of the pavilion. [[animation](#)]

INVITED TALKS

A010125: AI Architecture Before and After

Oct. 24th, 2023 expected

Title: From Digital Fabrication to 3D Scene Understanding.

Dept. of Architecture, Xi'an University of Architecture and Technology

Design@Large Panel: Landing a Research Position

Sep. 22nd, 2023

Title: Multidisciplinary Research Journey in Computer Vision and AEC.

Jacobs Institute of Design Innovation, University of California, Berkeley

Architectural Robotics: From Design to Construction

Nov. 20th, 2019

Title: Basic Robotics Concept in Digital Fabrication.

College of Civil Engineering and Architecture, Zhejiang University

REFERENCE

From Civil and Env. Engineering

Hao Zheng

Assistant Professor, Civil Eng. Dept.

City University of Hong Kong

hazheng@cityu.edu.hk

Zee Leong

Director of Architectural Engineering Division

RoboticPlus.AI

zeeleong@roboticplus.com

From Computer Science

Allen Y. Yang

Executive Director and Principal Investigator

FHL Vive Center for Enhanced Reality

yang@eecs.berkeley.edu

Chengfen Xu

Ph.D., EECS Dept.

University of California, Berkeley

xuchenfeng@berkeley.edu