

# ZIXUN HUANG

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## SUMMARY

Zixun Huang is a graduate student researcher in [FHL Vive Center](#) @UC Berkeley, works closely with [Dr. Allen Y. Yang](#). Prior to this, he obtained his Bachelor of Architecture from Zhejiang University. His research interests focus on 3D Vision and Autonomous Fabrication.

## 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

## PUBLICATIONS

- **Huang, Z.\***, Yao, K.\*, Zhao, S. Z.\*, Pan, C.\*, Xu, T., Feng, W., & Yang, A. Y. (2023). [Robust Digital-Twin Localization via An RGBD-based Transformer Network and A Comprehensive Evaluation on a Mobile Dataset](#). arXiv preprint arXiv:2309.13570.
- Zhuang, X.\*, **Huang, Z.\***, Zeng, W., & Caldas, L. (2023). [MARL: Multi-scale Archetype Representation Learning for Urban Building Energy Modeling](#). In Proceedings of the IEEE/CVF International Conference on Computer Vision (pp. 1565-1572).
- Xu, W., & **Huang, Z.** (2020). [Robotic Fabrication of Sustainable Hybrid Formwork with Clay and Foam for Concrete Casting](#). In Congreso SIGraDi 2020. São Paulo: Blucher (Vol. 8, No. 4, pp. 377-383).
- Wang, S., Huang, K., **Huang, Z.**, Sodano, M., Xu, W., & Raspall, F. (2019). [Fabrication of Topology Optimized Concrete Components Utilizing 3D Printed Clay Mould](#). In Proceedings of IASS Annual Symposia (Vol. 2019, No. 6, pp. 1-7).

## RESEARCH EXPERIENCE

### Lead Graduate Researcher, Open-Sourced AR SDK

**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.
- Led the development of DTTDNet: a 3D object localization algorithm; achieved SOTA accuracy on multiple datasets; conducted over 25 recorded ablation experiments. ([github](#))
- 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.

### Student Researcher

**May. 2023 - Sep. 2023**

*XR Lab - Immersive Design Student Club*

*University of California, Berkeley*

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

### Teaching And Research 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 Robots, and Rhino3D; enabled robotic printing on quadric surfaces.

## WORKING EXPERIENCE

### Robotics Engineer Intern

**Jan. 2019 - May. 2019**

*RoboticPlus.AI*

*Shanghai, China*

- Designed and fabricated the **China's first** all-carbon fiber pavilion (*press:* [archdaily](#), [domus](#), [gooood](#)); 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. ([animation](#), [video](#), [pdf](#))
- 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.