ZIXUN HUANG

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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 *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.

SKILL SETS

Languages:	Python, C/C++, Java, Shell Script, C#, JavaScript, HTML, CSS, Swift, LaTeX
Frameworks & Tools:	PyTorch, OpenCV, Open3D, ARKit, Django, React, Git, Node.js, Nginx, AWS, MySQL, Android Studio.
3D Modeling Tools:	COLMAP, Nerfstudio, Grasshopper, Rhinoceros, Unity, Unreal Engine, Blueprints, Blender.
Design Tools:	Figma, Adobe Creative Suite (PS, AI, ID, PR), AutoCAD, ArcGIS.
Hardwares:	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.

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, gooood]
- 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]