

# Han (Helen) Zhang

✉ [doublehan07@gmail.com](mailto:doublehan07@gmail.com)  [doublehan07.github.io](https://github.com/doublehan07)  [doublehan](https://www.linkedin.com/in/doublehan)

## EDUCATION

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**Tsinghua University** 2014-2016, 2018-2020, 2021-2023

*B.E. in Department of Electronic Engineering*

*GPA: 3.7/4.0*

Gap years in 2016-2018 and 2020-2021 in two startup companies as a co-founder.

**Selected Coursework:** Motorsport Engineering(A+), Mobile Intelligent Robot(A+), Humanoid Soccer Robot(A), Manufacturing Process Design(A+), Microcontrollers and Embedded Systems(A), Electronic System Design(A), Complex Analysis(A), Linear Algebra(A), Calculus(A), Physics(A+), Quantum Mechanics(A)

## EXPERIENCE

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**Research Assistant** | *IIS, Tsinghua University* 2022-Present

- Advised by [Prof. Huazhe Xu](#).
- Author of [ArrayBot](#), [9DTact](#) and [DOGlove](#).
- Contributes to the design of new hardware devices in the laboratory.

**CTO** | *Jaresh Tech Inc.* 2020-2021

- A startup company focused on next-generation XR glasses.
- Lead the Engineering Verification Test (EVT) and Design Verification Test (DVT) of the product prototype.
- Develop the circuits, mechanical structures, CV and SLAM algorithms.
- Obtain an authorized patent (CN202130465143.0).

**Co-Founder** | *Dexta Robotics Inc.* 2016-2018

- A startup company specializing in easy-to-use force feedback glove.
- Raise over \$1.5M angel round from Grainsvalley Ventures and Sunwoda (A Public company).
- Design the circuits, embedded systems, C# API, and Unity applications.

## RESEARCH INTERESTS

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### Robotics

- Robot System Design (Full-stack, both hardware and software parts); Robot Learning; Manipulation

### Human Computer Interaction

- Force and Texture Feedback; Mixed Reality (AR/VR/XR)

## HONORS & AWARDS

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**RoboCup @Home Open Platform, Rank 7** 2019

The [RoboCup@Home](#) is the largest international annual competition for autonomous service robots.

**National Scholarship, Top 5%** 2018

For inspiring undergraduates to study hard and develop morally, intellectually, and physically.

**GIX Innovation Competition, The Second Prize** 2018

A [worldwide event](#), invited young innovators to develop projects for ubiquitous computing, and related fields.

**iF Design Award, Product/Industry** 2018

The [iF Design Award](#) stands as one the most prestigious design awards in the world.

**RedDot Award, Product Design Award** 2017

The [Red Dot Design Award](#) is one of the world's largest design competitions for product design.

**International Design Contest (IDC) Robocon, The Third Prize** 2016

International teams of students take part of the [contest](#), designing and building remotely controlled robots.

<b>Fellowship of Spark Talents Program</b> , <i>50 recipients in Tsinghua per year</i>	2016
The program selects top undergraduates with academic potential and enhances their innovative abilities.	
<b>Tsinghua Artificial Intelligence Design Contest</b> , <i>Rank 6</i>	2015
This contest requires participants to develop AI programs for machine-machine gameplay.	
<b>Tsinghua Electronic Design Contest</b> , <i>Championship</i>	2014
One of the university's top competitions challenges participants to design a robot car for a designated task.	

## PUBLICATIONS

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<b>ArrayBot: Reinforcement Learning for Generalizable Distributed Manipulation through Touch</b>	ICRA 2024
Z Xue*, <u>H Zhang*</u> , J Cheng, Z He, Y Ju, C Lin, G Zhang, H Xu	<a href="#">Website</a>
<b>9DTact: A Compact Vision-Based Tactile Sensor for Accurate 3D Shape Reconstruction and Generalizable 6D Force Estimation</b>	RAL 2023
C Lin, <u>H Zhang</u> , J Xu, L Wu, H Xu	<a href="#">Website</a>

## PROJECTS

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<b>DexUMI: Manipulation Interface for Dexterous Hand</b>   <i>Advised by Prof. Shuran Song</i>	Jun.2024-Present
<ul style="list-style-type: none"> <li>Contributing to the design and development of hardware components for DexUMI.</li> </ul>	
<b>DOGlove: An Open-source Force Feedback Glove</b>   <i>Advised by Prof. Huazhe Xu</i>	Feb.2024-Present
<ul style="list-style-type: none"> <li>Developing a glove featuring 21 DoF motion capture and 5 DoF force feedback.</li> <li>Responsible for designing circuits, 3D-printed structures, embedded systems, and retargeting algorithms.</li> <li>Will be open-sourced soon; check <a href="#">our website</a>.</li> </ul>	
<b>Tinker: Service Robot at Home</b>	Oct.2014-Jul.2024
<ul style="list-style-type: none"> <li><a href="#">Team Tinker</a> is an project-based team that participates in numerous worldwide competitions annually.</li> <li>From 2014 to 2017, I was in charge of circuit design.</li> <li>From 2018 to 2019, I served as team leader and robot system designer.</li> <li>Since 2023, I've been responsible for mechanical and circuit design, as well as chassis ROS API.</li> </ul>	
<b>Self-coordinated Vehicle Formation</b>   <i>Advised by Prof. Yuan Shen</i>	Oct.2015-Mar.2017
<ul style="list-style-type: none"> <li>We use ultra-wideband (UWB) wireless technology to measure the distance between any two robot cars, eliminating the need for a base station to localize any car. The cars self-coordinate to determine their positions.</li> <li>Design the circuits, mechanics, and embedded systems of robot cars.</li> <li>Develop the UWB communication protocols.</li> <li>Design the self-coordinated algorithms.</li> <li>Formulate the formation strategies; <a href="#">Project website</a>.</li> </ul>	

## SKILLSET

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**Language & Tools:** C/C++, Python, C#, Matlab, Verilog, PyTorch, OpenCV, Qt5, Unity, ROS, webots, Gazebo  
**Hardware Design:** Altium Designer, Solidworks, AutoCAD, 3D Printing, CNC, Arduino, STM32, RaspberryPi  
**Creative:** Adobe Photoshop, LightroomClassic, PremierePro, AfterEffects, Audition