DEHAO WEI

Harbin Institute of Technology, Harbin, China

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EDUCATION

Harbin Institute of Technology (HIT), China   **Sep. 2017 – Jul. 2021(expected)**

Bachelor of Mechanical Engineering (Expected 20021)   GPA: 89.34/100

Core Courses: Mechanical Engineering Drawing (95/100)   Theoretical Mechanics B (100/100)

Electrical Technology A (92/100)   Mechanism Design (100/100)

Modeling and Control of Mechanical System (87/100)   Material-Oriented Nanofabrication (93/100).

Korea Advanced Institute of Science and Technology (KAIST), Korea   **Sep. 2019 – Jan. 2020**

KAIST Exchange Program

Exchange student, Department of Mechanical Engineering

RESEARCH AND PROJECT

A Novel FPGA-based Instrumentation Platform   **Oct. 2019 – Jan. 2020**

Smart Energy-Efficient Design Laboratory, KAIST   Advisor: Prof. Wanyeong JUNG

- Designed a novel FPGA-based instrumentation platform to drive signals into an optical phased array for beam steering.
- Provided an easier, faster and cheaper testing method, such as to drive the control signals into custom ASICs for testing purposes.
- Built a communication link between the computer and the FPGA, monitored the available memories in the FPGA chip and board, and tested a block ram.

5D Piezoelectric Position and Attitude Actuator   **July 2019 – Present**

Advanced Actuation Technologies Lab, HIT   Advisor: Prof. Yingxiang LIU

- Proposed a piezoelectric material-driven stepping actuator, in which only one single piezoelectric transducer is used to execute 3D rotary and 2D linear motion with 10-15nm high precision by the means of controlling bending and torsional deformation.
- Combined the advantage of the compact, large travel range and high precision, and could be widely used in the area of micro-nano operation, bioscience, ultraprecision machining and etc.
- Designed and build up 3D models of the actuators in Solidworks and made simulation on the position and attitude of actuator under varies driving forces with APDL.

A Novel Mobile Manipulator for Plugging Blade Hard Disk   **Mar. 2019 – June 2019**

National Robotics Institute, HIT   Advisor: Prof. Fusheng ZHA

- Designed and developed a mobile manipulator to plug-in and off the blade hard disk automatically in data center.
- It acquired the position and orientation of the hole by the means of template matching and points cloud and used a searching hole strategy based on the involute, guiding force on Z orientation and ZMP point on Y orientation. The performance of the algorithm can limit the rolling angle error within 1° and pitching angle error within 0.6°, and yawing angle within 0.3°.
- Designed the gripper driven by double motors in Solidworks,

A New Food Processor   **Mar. 2019 – Apr. 2020**

Engineering Innovation Training Center of HIT   Advisor: Mingxia LIU (Senior Engineer)

- Created a food processor for home use based on Arduino platform which applied an electric motor to drive four cutters connected simultaneously by a crankshaft to achieve automatic tool change.
- Developed a mobile phone App to control the food processor via Bluetooth which could provide options of desired shape selection, start and stop.
- A patent application of China is submitted(NO. 202020264668.8).

Two New Page-Turning Music Stand   **Mar. 2019 – Sep. 2019**

Engineering Innovation Training Center of HIT   Advisor: Prof.Guanglin WANG

- Established a pedal driven page-turning music stand which combined the gear and ratchet wheel.
- Built an automatic electronic page-turning music stand which was driven by electromagnet and combined the gear and ratchet wheel.

Auto-driving and parking smart car based on Arduino   **Sep. 2019 – Dec. 2019**

KAIST   Advisor: Prof. KYUNG, Ki-Uk

- Build an Arduino-based auto driving and parking system and simulated the system with a small car equipped with ultrasonic sensors and a camera.
- Applied the image recognition algorithm to detect the park lot and achieved an 85% success rate.
- Employed ultrasonic sensors to determine the distance to obstacles and stopped the car when the distance was less than 20mm to effectively avoid the car accident.
- Improved the accuracy of image recognition algorithm by optimizing the process of image sampling, e.g. colleting the images under various scenarios.

HONORS

- **National Inspirational Scholarship**, HIT (7/149)	**Sep 2019**
- **First Class Prize** in China Undergraduate Mathematical Contest in Modeling	**Dec 2018**
- **First Class Prize** in Mechanism Design Competition of HIT	**May 2019**
- **Third Class Prize** in Intelligent Robot Fighting Competition	**May 2019**
- **Second Class Prize** in 3D Innovation Design Competition of HIT	**Apr2018**
- **Second Class Prize** in Mechanical Structure Innovation Design Competition of HIT	**Jun 2019**

LEADERSHIP EXPERIENCE

Chairman, Cedar Club of HIT   **June 2018 – May 2019**

- Specified the roadmap and lead the team to maintain community operations.
- Organized various soft-skill development events and received positive feedback, e.g. leadership training program for 35 students from 5 universities and student employment training workshop.

National Leadership Camp by Cedar Public Welfare   **June 2018 – Aug. 2018**

- Trained all participants on community recruitment including concept understanding and recruitment rehearsal.
- Won the best promotion award because of my outstanding performance on promoting public

welfare.

SKILLS

Modeling software: CAD, SolidWorks, Inventor

Programming Languages: C/C++, Python,Verilog

Software: ANSYS, MATLAB

Controller: Arduino, FPGA, STM32, Intel MCS-51

Manufacturing Skills: Milling, Casting, lathe, CNC