

Li Haonan

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EDUCATION BACKGROUND

M.Eng. South China Normal University (211) 2023.09- 2026.06(expect to graduate) Guangzhou, Guangdong
Major: Optoelectronic Information Engineering

Graduation Dissertation: “*Head mounted multimodal optical/acoustic technology for monitoring cerebral lymphatic nerve vascular activity and closed-loop ultrasound regulation*”

B.Eng. Henan University of Science and Technology 2019.09-2023.06 Luoyang, Henan
Major: Automation

Graduation Dissertation: “*The remote somatosensory manipulator based on STM32 involves*” (Top 100 Outstanding Graduation Projects at the School Level)

RESEARCH INTERESTS

Robotics and automation; brain computer interface; wearable devices; artificial intelligence technology; image processing and machine vision; photoacoustic imaging system

PUBLICATIONS&PATENTS

Patents:

Li Haonan. (2023) “*A kind of automatic obstacle avoidance bionic mechanical dog.*”

Li Haonan. (2022) “*A bridge safety inspection system.*”

Li Haonan. (under review) “*A head mounted photoacoustic device for multi-parameter brain function monitoring and closed-loop regulation.*”

Journal:

Li Haonan. (under review) “*Large-scale transparent photoacoustic cranial window for long-term whole-brain cortical imaging*”, *Optics Letters*.

Manuscripts under review:

Li Haonan. “A head-mounted device that can simultaneously monitor lymphatic, vascular, and neural and realize closed-loop ultrasound stimulation based on the monitoring, expected to be submitted in the second half of the year.”

PREVIOUS POSITIONS

Science and Innovation Laboratory of the school-level **Technical Leader** 2020.09-2023.06

- Trained newcomers to the lab on 51 and stm32 microcontrollers for many times, participated in and designed many robots and control systems and achieved good results in various competitions. Responsible for algorithm design and software development.

PROJECT EXPERIENCE

Head-mounted Multimodal Optical/Acoustic Technology for Cerebral Lymphatic-Neurovascular-Vascular Activity Monitoring and Closed-Loop Ultrasound Modulation 2024.09

- A head-mounted device was built using Mems technology, which combined with photoacoustic imaging, EEG can simultaneously monitor lymphatic, vascular, and neurological in a dynamic manner and realize closed-loop ultrasound stimulation based on the monitoring results.

High Resolution Photoacoustic Functional Imaging Device

2024.02

- Fast-axis voice coil motor combined with slow-axis stepping motor, realizes fast and wide range photoacoustic image acquisition. Based on the stimulated Raman effect to obtain different wavelength laser, to realize the structure, blood oxygen saturation, blood flow rate and other photoacoustic functional imaging.

Line Focusing Probe Rapid Photoacoustic Imaging Device

2023.09

- Fast-axis galvanometer with slow-axis stepping motor, combined with a line focusing ultrasound transducer, realizes rapid and large-range photoacoustic image acquisition. Realize clear vascular imaging of brain, large intestine and placenta.

STM32-based remote body sensing robotic arm design (Excellent Graduation Design)

2022.05-2023.04

- Development of remote body sensing remote-control robotic arm and the realization of the clamping jaws of the torque feedback

Face recognition access control system based on LabView

2022

- Use LabVIEW to make the upper computer, mixed programming with python for face recognition and remote control of the access control to open.

Two Wheeled Balancing Trolley Design

2022

- Developing a two wheeled balancing trolley from hardware selection, software control, and circuit design.

Multifunctional automatic bathing (SRTP School-level excellent project)

Host

2021.11 - 2022.10

- Research and development of automatic bathing machine, realize the functions of washing and drying.

Alcohol Monitoring Device PCB Design

2021

- Designed and fabricated the circuit board of alcohol concentration monitoring device.

Development of quadruped bionic robot based on kinematics simulation (SRTP School-level excellent project)**Technical Leader**

2020.03 - 2021.02

- Development of quadruped bionic robot, realize the movement, jumping, obstacle avoidance, tracing etc.

SKIL& CERTIFICATE

Skilled in: Integrated development of software and hardware, Interdisciplinary backgrounds with unique perspectives on issues (electronic information, control engineering, robotics, computer science, optics, biology), Strong self-learning ability and exploratory spirit

Skill Certificates: CET4/CET6, Mandarin 2A Qualification Certificate, Computer Grade 2A, Professional Knowledge Assessment Certificate for Industry and Information Technology Talents

Engineering Skills: MCU, FPGA, SOLIDWORKS, MATLAB, LabVIEW, PADS, COMSOL, Proteus, ModelSim

Programming Languages: C/C++, Python

HONORS&AWARDS

-Graduate Academic Scholarship, first prize in the school-level

2024

-The 10th Henan Provincial Mechanical Innovation Design Competition, Henan Provincial Mechanical Engineering Association, guide mechanical dog, second prize in the provincial competition.

2022

-The 20th National University Student Robotics Competition ROBOCON, Central Committee of the Communist Youth League, robot equestrian race, second prize in the national competition.

2021

-Henan Provincial Robotics Competition, labyrinth mouse, third prize in the provincial competition.

2020