

Ningbo Postgraduate Wins iF Design Award 2024 for Accessible Design

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HyperSense – a hat-shaped innovative product enabling visually-impaired individuals to perceive their surroundings through haptic feedback on their face – recently won the prestigious iF Design Award 2024 among 10,800 entries worldwide. Its co-designers are Ruiheng Lan, a Ph.D. student in the Department of Mechanical, Materials and Manufacturing Engineering, University of Nottingham Ningbo China (UNNC), and his mentor, Dr Xu Sun.

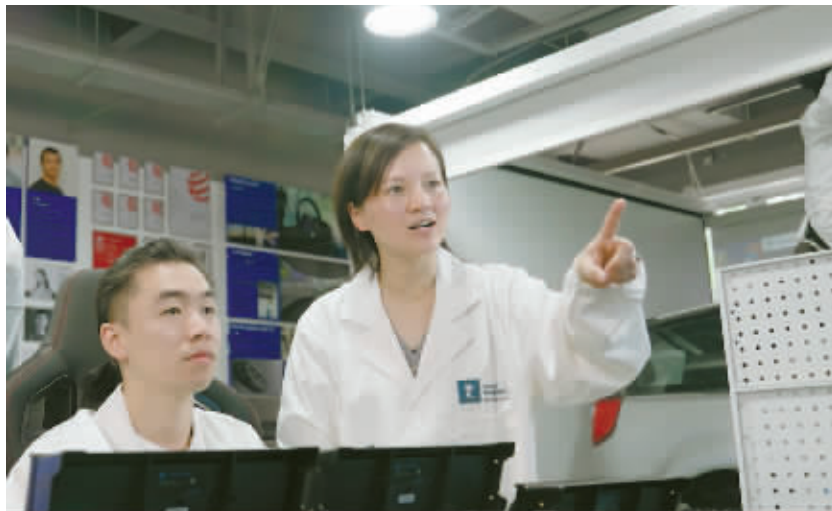
宁波诺丁汉大学工业设计专业博士研究生蓝睿恒的设计 HyperSense——一款利用超声波隔空触控技术辅助盲人出行的帽子,从全球 10800 件参赛作品脱颖而出,荣获 2024 iF 设计奖。

This honor marks the fourth win of Lan at the iF Design Award – globally renowned as the Oscar in the design industry. Apart from the iF Design Award, Lan has claimed more than ten relevant awards over the years, including the International Design Award (IDA) and the European Product Design Award (EPDA). Meanwhile, his product designs – which span multiple fields – have been granted seven patents.

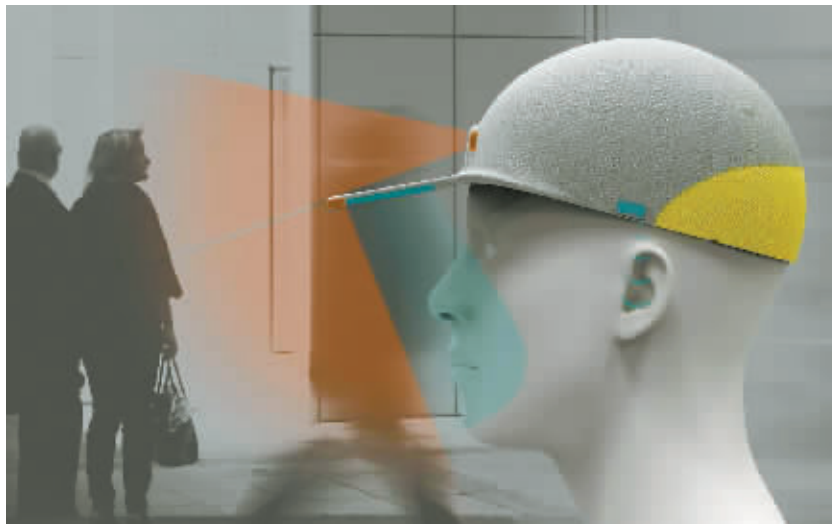
据悉, iF 设计奖素来有着设计界“奥斯卡”之称。这已经是蓝睿恒的名字第四次出现在该奖项的榜单上。截至目前,他已斩获了包含美国国际设计奖 (IDA)、iF 设计奖、欧洲产品设计大奖等在内的十余个奖项。同时,他还手握 7 项专利,产品涵盖多个领域。

“I don't think that product design needs to be overly complex or flashy. Simple designs are preferred to tackle practical problems,” said Lan; as a matter of fact, the employment of mid-air haptic technology in HyperSense is the focus of his doctoral thesis. His initial engagement in the haptic feedback technology can be traced back to a collaboration between UNNC and the Boeing Company. In the follow-up independent exploration, Lan has broadened his research scope from “haptic” to “mid-air haptic”.

“我认为,产品设计不必过于复杂和花哨,而是要用简单的设计去解决实际问题。”蓝睿恒说,本次设计中运用的隔空触控技术,是自己博士课题的研究方向。之前,在宁波诺丁汉大学的校企



Ruiheng Lan (Left) and his mentor Xu Sun conduct an experiment.



Design concept of HyperSense.

合作项目中,第一次接触到“震动反馈”相关技术,随后便展开了一系列的自主探索和实验,研究范围也从“触控”延伸至“隔空触控”。

An integration of computer vision technology and mid-air haptic feedback enables HyperSense to scan the surroundings through the environment perception technology. It then converts the information into vibrations of different frequencies, and ultimately transmits them through ultrasonic waves to the user's cheeks and lips. The distance and direction of obstacles can be easily identified via sensing vibrations of different frequencies on distinct facial parts.

简单来说,这款设计可以在通过环境感知技术扫描周围情况后,把这些信

息转换为不同频率的震动,并通过超声波隔空传递到用户的脸颊、嘴唇等部位。用户根据震动的不同频率和作用部位,便能轻松识别障碍物的距离和方位。

Professor Sun, Lan's mentor, fully endorsed the design, “HyperSense integrates assistive devices into wearable everyday items, liberating visually impaired individuals from relying on a blind cane or other passive means of guidance. The design allows them to navigate more independently and flexibly, thus enhancing their engagement in social activities.”

“该设计将辅助设备转变为可穿戴的日常物品,让盲人群体可以不再依赖盲杖等被动的感知工具,从而可以更加自主灵活地行动,提升在社会活动中的参与度。”对于此款设计,蓝睿恒的导师

孙煦教授给予了充分肯定。

Lan attributed the secret of his success to the nurturing environment of his alma mater UNNC. “The industrial design studio on campus provides advanced equipment for tests and experiments, and the UNNC Li Dak Sum Incubator grants a research fund for our project. Thanks to the support from our university, we made it eventually.” According to this young award winner, he has been guided to explore various design directions such as humanistic care and sustainable development as early as during his undergraduate studies. Lan has also participated in multiple research projects as well as corporate practices organized by the university. These experiences propelled him into cultivating a habit of problem-solving.

谈及成功的秘诀,蓝睿恒不忘感谢母校宁诺的培养。早在本科阶段,他便在学校的引导下,了解人文关怀、可持续发展等多个设计方向,参与多个学校组织的科研项目和企业实践,并逐渐养成了发现问题的习惯、有了解决问题的能力。“与此同时,学院专业的工业设计工作室提供了许多先进设备,支持我进一步探索设计方案;宁诺李达三孵化园创新工作室也为该项目提供了科研基金——这些支持,最终让我的想法得以实现。”蓝睿恒说。

Currently, Lan is exploring potential applications of this technology in innovative fields of human-computer interaction, such as automated driving interfaces and emotion transmission within virtual reality environments. The goal of this creative designer is to incorporate this technology into products that can facilitate everyday life and serve the wider community.

目前,蓝睿恒正尝试将这项技术应用在新型的自动驾驶交互、虚拟现实环境中的情绪传达等人机交互领域,希望技术能够真正通过产品走进生活、服务于社会大众。

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