



University of Nottingham
UK | CHINA | MALAYSIA



UNNC – School of Mechanical Engineering, ZJU Doctoral Training Partnership

Available PhD topics

PhD topic 1	Eye tracking, controlling, and disease diagnosis
ZJU, MechEng Supervisor	Prof. Sheng Zhang
UNNC Supervisor(s)	Prof. Xu Sun
Short introduction & description of PhD	<p>Eye tracking has attracted great attention in these years especially in the field of disease diagnosis and treatment, visual reality, augmented reality, etc. There are two main ways for eye tracking: visual analysis and electrooculogram (EOG), and Eye tracking can be applied to diagnosis various diseases including Alzheimer's disease, autistic disorder, AIDS Dementia Complex, etc. Eye controlling is also a rising topic in recent years. By the detection of electrooculogram (EOG), electromyogram (EMG), electroencephalogram (EEG), and visual analysis, eye control can be applied in the field of human-machine interface (HMIs) and artificial arm. Besides, eye control provides a new way for patients with amyotrophic lateral sclerosis (ALS) or high paraplegia to communicate with others and control various home appliances.</p>
Contact points	<p>Informal inquiries may be addressed to Prof Sheng ZHANG (szhang1984@zju.edu.cn) and Prof Xu SUN (sun@nottingham.edu.cn), but formal applications should follow the instructions in 'How to apply' section.</p>
PhD topic 2	Underwater inspection and maintenance technology of cross-sea bridge based on dual-mode operating robot
ZJU, MechEng Supervisor	Prof. Canjun YANG
UNNC Supervisor(s)	Dr Qingfeng Wang
Short introduction & description of PhD	<p>The inspection and maintenance of cross-sea bridges is necessary to ensure the service life of facilities and the safety of people. In recent years, underwater robots have become ever more capable as human substitutes in various tasks. However, due to the precision and flexibility demand of cross-sea bridge inspection and maintenance, common robots are not yet able to outperform humans in this field. For the problem above, an underwater operating robot with both swimming and adsorption functions will be applied to realize the target of labor liberation.</p> <p>This project will focus on two major dimensions on (i) mathematical modeling of optimization of underwater dual-mode operating robot and (ii) robot inspection and maintenance technology of cross-sea bridge.</p>

Contact points	Informal inquiries may be addressed to Prof. Canjun YANG (ycj@zju.edu.cn) and Dr. Qingfeng Wang (Qingfeng.wang@nottingham.edu.cn) but formal applications should follow the instructions in 'How to apply' section.
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