PhD studentship (Full-time)

Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Robotics
Supervisors	Principal supervisor: Dr. Ki-Young Song (XJTLU) Co-supervisor: Dr. Sze-Hong Teh(XJTLU) Co-supervisor: Dr. Heba Lakany (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Personalized Human-Robot Interaction with Emotionally Adaptive Mobility Assistants for Elderly Care
Contact	Please email kiyoung.song@xjtlu.edu.cn with a subject line of the PhD project title. The principal supervisor's profile is linked here: https://scholar.xjtlu.edu.cn/en/persons/KiYoungSong http://www.bio3designlab.com

Requirements:

A Master's degree with Merit and a Bachelor's degree with first-class or upper second-class honors are required for PhD admissions. Exceptional candidates holding only a Bachelor's degree may be considered on an individual basis in certain disciplines.

Evidence of good spoken and written English is essential. The candidate should have an IELTS (or equivalent) score of 6.5 or above, if the first language is not English. This position is open to all qualified candidates irrespective of nationality.

Degree:

The student will be awarded a PhD degree from the University of Liverpool (UK) upon successful completion of the program.

Funding:

The PhD studentship is available for three years subject to satisfactory progress by the student. The award covers 50% tuition fee reduction for three years (RMB 148,500 total value). It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. The scholarship holders are expected to conduct the majority of their research at XJTLU in Suzhou, China. However, they may apply for a short-term research visit to the University of Liverpool if the project requires it.

Project Description:

The research aims to develop an innovative assistive robotic system that integrates personalized emotional adaptation with mobility support for elderly users. This system uses advanced emotion recognition through machine learning to interpret multimodal data such as facial expressions, vocal tones, and physiological signals. A fuzzy logic controller processes these inputs, adapting the robot's behavior based on the user's emotional state. For example, the system decreases speed or increases stability in response to frustration or anxiety, and increases speed when the user is calm or delighted. Model Predictive Control (MPC) ensures optimal motor performance, adjusting for terrain conditions and maintaining stability. This enables the mobility assistant to provide responsive, real-time adjustments that improve user safety and comfort. Continuous sensor integration allows the system to adapt to environmental changes, providing seamless mobility assistance. The system also employs reinforcement learning, allowing it to personalize its responses based on the user's emotional patterns and preferences over time. This ongoing adaptation enhances both physical mobility and emotional well-being, creating a tailored experience for each user. User trials with elderly participants will be conducted to evaluate the system's performance, gathering quantitative and qualitative data on emotional responses, mobility support, and user satisfaction. These trials will inform iterative improvements, ensuring the system evolves based on real-world feedback. This research will advance the fields of assistive robotics and human-robot interaction (HRI), offering a personalized solution that improves both the emotional and physical well-being of elderly individuals in need of mobility assistance.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU), please visit

https://www.xjtlu.edu.cn/en/admissions/global/entry-requirements/

https://www.xjtlu.edu.cn/en/admissions/global/fees-and-scholarship

How to Apply:

Interested applicants are advised to email kiyoung.song@xjtlu.edu.cn (XJTLU principal supervisor's email address) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Two formal reference letters
- Personal statement outlining your interest in the position
- Certificates of English language qualifications (IELTS or equivalent)
- Full academic transcripts in both Chinese and English (for international students, only the English version is required)
- Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)
- PDF copy of Master Degree dissertation (or an equivalent writing sample) and examiners reports available