

Research Assistant: Haptic robotic arm system

Department	Design, Manufacture and Engineering Management (www.strath.ac.uk/dmem/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Research	Reference No	53717
Reports To	The Head of Department through the Project Leader	Grade:	6
Salary Range:	£26829 - £30,175	Contract Type:	Fixed Term (36 months)
FTE:	1	Closing Date	Sunday, 30 April 2017

Job Advert

The Space Mechatronic Systems Technology Lab within the Department of Design, Manufacture and Engineering Management seeks to recruit a Research Assistant in Haptic robotic arm system design for application within a range of environments and applications including satellite applications and space mechatronic systems development. The Assistant will work as part of a team on a robotic project funded by the European Commission and an Overseas' funder. The team comprises of both University and Industry staff. It is expected that this work may also be expanded into mechatronic system development for CAD system and other applications.

As a Research Assistant you will support research into existing relevant haptic robotic arm technology and systems; thoroughly investigate the innovative systematic approach using these systems or solutions for as many as innovative applications, e.g. CAD system interaction and human robotic interaction challenges in factory assembly simulations and other industrial sectors. The role will require the Assistant to work, with guidance as required, with CAD models of engineering parts, robotics and haptic /robotic controller.

To be considered for the role, you will be educated to a minimum of Degree level within a relevant discipline, or you will have relevant industrial experience, with a sufficient breadth and/or depth of knowledge in robotic hand, manipulator systems design, integration and construction. You will have knowledge of haptics, robotics, CAD or robotic arm systems or other system design, or mechatronic system development and you will have the ability to apply design skills in system integration of CAD, robotic hand/arm and visualisation systems. You will have an ability to write up the results of your own research and contribute to the production of research reports and publications reports. You will have excellent interpersonal and communication skills, with an ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences and have an ability to work autonomously and as part of a multi-disciplinary and/or cross-disciplinary team.

Whilst not essential for the role, applications are welcomed from candidates with: experience in industrial robotics; experience of building and integrating robotic controller/s, with robotic hand and vision based tracking system, within an industrial environment; and/or broad knowledge of control programming and manipulation in developing their support systems. Candidates with industrial experience and space research are also welcomed.

Job Description

Brief Outline of Job:

To assist in the delivery of research activities as part of a team, working on an established research programme/s under the general supervision of senior colleagues; to input as a team member to administrative activities; to assist where required with relevant teaching and knowledge exchange activities.

Main Activities/Responsibilities:

1.	With guidance, as required, conduct literature and market reviews of relevant automation systems.
2.	Based on the market investigation on haptic control and human interaction from the companies, with guidance, design and develop an innovative haptic robotic hand control system, which can be used to control manipulation of CAD models in a virtual environment. It is intended that these integrated solutions will have step change to many remote manipulation operations. Initially, it might be necessary to work on some commercial systems.
3.	Support the development of working prototypes for controlling a haptic device to interact with the CAD model.
4.	Assist in the development of software modules for fast human haptic hand interaction.
5.	Support the design, prototyping and testing of new solutions and equipment.
6.	Manage and prioritise own workload within agreed objectives to ensure that all activities are completed to deadlines.
7.	Assist with the supervision of project students and the delivery of introductory classes, as required.
8.	Write up results of own research and contribute to the production of research journal publications and reports.
9.	Contribute to the research proposal development and planning of research programmes as required and join mechatronic network for research result dissemination.
10.	Input as a team member to Department/School, Faculty and/or University administrative activities.
11.	Engage in continuous professional development.

Person Specification

Educational and/or Professional Qualifications (E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)		Assessment Method
E1	Good Honours degree in mechatronics, control, automation, mechanical engineering, manufacturing, electronic and/or mechanical engineering or other appropriate discipline	Application/CV
D1	Membership of relevant Chartered/professional bodies (including Higher Education Academy)	Application/CV
Experience		
E2	Experience of mechatronics, CAD programming, controller design, automation or mechatronic system development or mechanism development	App/CV/Interview
E3	Experience of 3-dimensional modelling and control block diagram modelling and simulation	Interview
D2	Experience of building and integrating haptic equipment within an industrial environment or general experience in developing mechatronic systems	App/CV/Interview
Job Related Skills and Achievements		
E4	Ability to write both high level and lower level programs to control haptic devices and tracking visual signals	Application/CV
E5	The ability to develop control code to drive mechanisms and mechatronic structures for human interaction, automation applications or other mechatronic system applications in manufacturing	Interview
E6	Sufficient breadth or depth of knowledge in haptic robotic systems, automation or mechatronic system development to effectively contribute to the research programme	Interview
D3	Broad knowledge of Mechatronic Systems, mechanism modelling and simulation and the challenges in developing their support systems	Interview
Personal Attributes		
E7	Excellent interpersonal and communication skills, with the ability to listen, engage and persuade, and to present complex information in an accessible way to a range of audiences	App/CV/Interview
E8	Ability to work independently and as part of a multi-disciplinary and/or cross-disciplinary team	Interview
E9	Ability to work under pressure and driven to deliver results	Interview
E10	Open and willing to undertake new challenges	Interview
E11	Resourceful and collaborative with others	Interview

Other Relevant Factors

D4 Full UK Driving Licence with access to own vehicle

Interview

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted before interview without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (<http://www.strath.ac.uk/hr/workforus>).

Informal enquiries about the post can be directed to Professor Xiu T Yan, Director of SMeSTech lab (x.yan@strath.ac.uk/0141 548 2852).

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from [Payroll and Pensions](#).

Interviews

Formal interviews for this post will be held in May 2017.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing women's careers in science, technology, engineering, maths and medicine (STEMM) employment in academia.

