



FULLY FUNDED PHD POSITION IN ROBOTICS FOR FORESTRY
SIMULATION TECHNOLOGY, ROBOTICS, DIGITAL TWINS
INSTITUTE FOR MAN-MACHINE INTERACTION

OUR PROFILE

Are you interested in robotics, professional 3D simulation technology, Virtual Reality, computer graphics, and control technology for the realization of comprehensive Digital Twins and innovative Industry 4.0 applications? Do you want to develop your knowledge not only on a theoretical level, but also to apply it practically in various fields – from forestry to industrial applications or space robotics – and to realize your own ideas in a professional 3D simulation system? Then you have come to the right place, the MMI!

The Institute for Man-Machine Interaction (MMI) is a nationally and internationally very active and successful research institution in the Faculty of Electrical Engineering and Information Technology of RWTH Aachen University. MMI specializes in modelling and simulating systems and environments, in analyzing complex systems, in connecting humans, devices and machines, and in realizing intelligent systems. MMI's innovative Digital Twins revolutionize the development process and the operation of (not only) robotic systems and are the basis for the convergence of virtual and real worlds. The application areas span various industries and disciplines ranging from robot manipulators, mobile robots, and road vehicles up to agricultural, forestry, and construction machines.

With regard to this position, MMI is partner in the ETN Skill-For.Action project, funded by the European Commission. ETN Skill-For.Action integrates the fundamental research in forest ecology and applied science of forest engineering in an interdisciplinary team. The project [calls for applications](#) for 12 fully funded Early-Stage Researchers (ESRs), with attractive complementary training activities, associated research and travel budgets, and the opportunity to achieve PhD title.

YOUR PROFILE

We seek for a candidate having a master's degree in Mechanical Engineering, Electrical Engineering or Computer Science. If possible, the candidate should be well grounded in simulation technology. Programming skills (e.g. C++, Python) are required. Good English linguistic proficiency is necessary as well as sound communication abilities and capacity of teamwork. The candidate should be willing to conduct empirical field studies, also in other participating countries and remote areas.

YOUR TASKS

You will be one of the Early-Stage Researchers in the above mentioned Skill-for.Action project. [Your position ESR10](#) focuses on the development of experimentable models allowing for a highly detailed simulation of forest machine operations of view with respect to different forest machines, operation plans, forest types, tree species and wood products in different regions and countries. The result is the simulative basis for the forest machines' Digital Twin from a robotics point of view, which allows to predict emission as well as consumption key figures for concrete forest machines operating in a specific wood harvesting scenario following a certain operation plan. An important aspect will be to create accurate models of the drivers' behaviour replicating the real drivers' control activities and providing the necessary control input for the Digital Twin. They will be used in repeatable simulation runs which serve as the basis for optimization problems to optimize the harvesting plan with respect to the carbon footprint of the harvesting operations. During your work, you will benefit from the MMI's long-running experience in simulation of mobile robots, robot manipulators and mobile working machines and will link your work to other application areas in space and industry.

OUR OFFER

You will receive a full-time contract (39.83 hours per week) with RWTH which is based on the regulations laid out by the regulations of the German public service salary scale (TV-L). You will be integrated into the research and teaching activities of the Institute for Man-Machine Interaction (MMI). In addition, RWTH offers various training possibilities, e.g. via the Center for Doctoral Studies.

YOUR CONTACT PERSON

For preliminary information, please contact

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Use also our web pages for information:

www.mmi.rwth-aachen.de
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