

Available Projects for UoT students

Institutes	Professor and Group	Topics
Institute of Mechatronic Systems (<u>IMS</u>)	<u>Prof. Dr. Marcel Honegger</u> <u>Robotics & Automation</u>	- Development of omnidirectional mobile robot
Institute of Mechatronic Systems (<u>IMS</u>)	<u>Michael Wüthrich</u> <u>Biomedical Engineering</u>	- Different projects in applied biomedical engineering

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Centre for Artificial Intelligence (<u>CAI</u>)	<u>Prof. Dr. Alisa Rupenyan</u> <u>Industrial AI</u>	<ul style="list-style-type: none">- Development of meta-learning models for robotic applications (for example, robotic winding)- Setting up some of our robots for autonomous navigation- Increasing the autonomy of the robots by developing learning-based models for different applications.

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Centre for Artificial Intelligence (<u>CAI</u>)	<u>Dr. Ricardo Chavarriaga</u> <u>Responsible AI Innovation</u>	<ul style="list-style-type: none"> - Research on privacy-preserving brain-machine interfaces - Responsible AI development - Regulatory-compliant AI risk assessment, - Multi-objective reinforcement learning for safety-critical applications
Centre for Aviation (<u>ZAV</u>)	<u>Prof. Dr. Michel Guillaume</u> <u>Structural Integrity and Aircraft Repairs</u>	<ul style="list-style-type: none"> - Corrosion of Aviation Alloys - Metal surface analysis - Acuity corrosion measurements - Corrosion data analysis <p style="color: red; font-weight: bold;">Detailed project descriptions available!</p> <p>Prof. Guillaume urgently searches for a student!</p>

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Centre for Aviation (<u>ZAV</u>)	<u>Dr.-Ing. Peter M. Lenhart</u> <u>Human Factors Engineering at the Centre for Aviation</u>	<ul style="list-style-type: none"> - Gamification of 4D Flight Path following - Development of a tangible 4D Flight Path - Extension of a Flight Path Generator - visionOS Software Development <p>Augmented Reality applications to improve flight training and manual flight path control.</p> <p>Detailed project descriptions available!</p>
Institute of Signal Processing and Wireless Communications (<u>ISC</u>)	<u>Dr. Marc Kuhn</u> <u>Communications Engineering - Wireless Communications</u>	<ul style="list-style-type: none"> - Sensor-Electronics and RF - Digital Signal- and Image-Processing - Wireless Communications

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Institute of Sustainable Development (<u>INE</u>)	<u>Prof. Maike Scherrer</u> <u>Sustainable Supply Chain Management and Mobility</u>	<ul style="list-style-type: none"> - <u>Autonomous driving vehicles</u> (People mobility, technology acceptance, use patterns of autonomous driving vehicles) - <u>Circulus</u> (Circular Supply Chain Design, Circular Logistics Networks; Sustainability/Circularity impact measurement) - <u>Resilient supply chains</u>: development, sending out questionnaires, analysing questionnaires to analyse resilience drivers and enables for resilient supply chains

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Institute of Sustainable Development (<u>INE</u>)	<p><u>Prof. Maike Scherrer</u> (continued)</p> <p><u>Sustainable Supply Chain Management and Mobility</u></p>	<ul style="list-style-type: none"> - <u>Smart Urban Multihubs</u> (system transformation in urban logistics; benefit of different hub types in urban settings; autonomous driving delivery vehicles; cargo bike implementation in last mile logistics; comparative study in which city setups cargo bikes are more beneficial than delivery vans, etc)
Institute of Sustainable Development (<u>INE</u>)	<p>Corinna Baumgartner</p> <p><u>Risk Management and Technology Assessment</u></p>	<ul style="list-style-type: none"> - Enabling manufacturing companies to implement the circular economy through the use of data (<u>BePro-CEND</u>) - Evaluation System for Additive Manufacturing (<u>ESAM</u>) - <u>IoT Sustainability Lab</u>

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Institute of Sustainable Development (<u>INE</u>)	<u>Prof. Vincente Carabias and Martina Rechsteiner</u> <u>Sustainable Energy Systems and Smart Cities</u>	- <u>International Comparative Analysis of Smart Cities</u>
Institute of Sustainable Development (<u>INE</u>)	<u>Dr. Anton Sentic</u> <u>Sustainable Energy Systems and Smart Cities</u>	- <u>Living Labs/Real-World Labs for local Entrepreneurship</u>

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Institute of Sustainable Development (<u>INE</u>)	<u>Pascal Vögeli and Lucas Truniger</u> <u>Sustainable Energy Systems and Smart Cities</u>	- <u>Support for the application testing of PED Readiness Assessment to promote Positive Energy Districts</u>
Institute of Sustainable Development (<u>INE</u>)	<u>Prof. Vincente Carabias</u> <u>Sustainable Energy Systems and Smart Cities</u>	- <u>Co-Design for 5 Minutes Districts and enhanced Multi-modal Public Transport hubs</u>

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Institute for Data Science (<u>IDS</u>)	<u>Prof. Dr. Helmut Graber</u> <u>Head of Visual Intelligence and Applications Group</u>	<ul style="list-style-type: none">- Computer Vision- Visual Computing- Extended Reality (Augmented/ Virtual/ Mixed Reality)- Visual Communication- Computer Assisted Learning and Training- Sport Analytics
Institute for Data Science (<u>IDS</u>)	<u>Dr. sc. ETH Jürg Meierhofer</u> <u>Smart Services and Operations</u>	<ul style="list-style-type: none">- Operations Research- AI-driven Services

Available Projects

Institutes	Head/Faculty	Topics
Institute of Embedded Systems (<u>InES</u>)	<u>Prof. Andreas Rüst</u> <u>Internet of Things</u> <u>Low-power Wireless Embedded Systems</u> <u>High Integrity Systems</u>	<ul style="list-style-type: none"> - Internet of Things, Low-power Wireless Embedded Systems, Embedded Security - Embedded AI and Edge Processing - High Integrity Systems and Time-sensitive Networking (several projects available)
Institute of Mechanical Systems (<u>IMES</u>)	<u>Prof. Dr. Robert Eberlein</u> Head of Institute <u>Sven Sven Düzel</u>	Lifetime modelling of Polyoxymethylen (POM) under cyclic uniaxial loading Detailed project descriptions available with tasks and requirements Detailed project descriptions available!

Looking forward receiveing many applications!



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