

State of Robotics in the United Kingdom and Ireland



The UK and Ireland accounted for 21 of 250+ euRobotics member organizations and 31 of 200+ (European) RoboticsToday member organizations. There was quite a bit of overlap between the two member lists and even within the RoboticsToday list. As opposed to our study of Germany, the UK member organizations are primarily research organizations or universities. There is a high level of collaboration and more research than robot production among the member organizations we've profiled. We've highlighted some of the developers and research organizations from these member lists. EU-funded projects seem to have more information online, sometimes including detailed plans for ongoing projects. It may be helpful to include an EU project that has such readily available empirical data. It might also be interesting because the EU projects typically involve a number of collaborators.

DEVELOPERS

Sheffield Robotics Sheffield



"From Intelligent Building Blocks to Living Things"

"The 'Evo-Bots' project aims to engineer highly simplified – yet physical – models of 'living' organisms using mechatronic building blocks. Our long-term vision is to study how technical systems can autonomously evolve and thereby adapt to changing environments. A system of robotic units that are able to (i) harvest energy, (ii) respond to stimuli in their environment, (iii) organise into structures via self-assembly, and (iv) replicate such structures."

"...we seek to play a leading role in the world robotics community, and to promote the development of ethical, useful, safe, and sustainable robotic and autonomous systems that can enhance human prosperity across the globe." [Sheffield Robotics](#) [Research Centers](#) [Evo-bots](#)

Ortelio Robotics Coventry



Ortelio has taken part in the EU project, [MARIO](#). Ortelio is a software developer, specializing in cloud robotics. They've made interesting claims regarding the role of cobots in relation to humans:

"In MARIO we aim to utilize our cloud robotics platform to support Kompai robot in managing active and healthy aging. Specifically, in MARIO we address the challenges of loneliness, isolation and dementia in older persons through innovative and multi-faceted interventions delivered by service robots."

"We are developing applications that give robots intelligence to take over human tasks."

[Mario Cobot](#) [Photo](#) [EU Project](#)

(Uses the Kompai robot, which uses the Kinect and a tablet)

Bristol Robotics Laboratory Bristol



Bristol Robotics Laboratory is a collaboration between the University of the West of England and the University of Bristol. Under their research area Assisted Living, they've collaborated on the EU project MOBOT to assist aging persons with mobility. One of the two robots in development is called a "nurse-type mobility assistant."

"...self-motivated robot behaviours based on context-specific human activity monitoring, including autonomously approaching a user...follow a person from a close (safe) distance to provide assistance whenever and wherever needed (e.g. when fatigue is observed)." [Detailed Workplan](#)

Ocado Limited Andover, Hampshire



Ocado is an online supermarket that ships all of its products from warehouses to consumers. Ocado has recently installed 1000 robots in an automated warehouse. Ocado developed the robots in house, while the hive system was designed by [Cambridge Consultants](#). A representative from Cambridge Consultants "insisted that the robotic warehouse tech isn't about automating human jobs, but making the already-automated tasks of storing and moving goods more efficient." [Vice News](#)

In fact, Ocado employs 700 software engineers, "working on everything from supply chain to order routing and 'cubing', which works out the order in which products should be picked to avoid the risk of contamination or heavy items crushing smaller ones." [V3.co.uk](#)

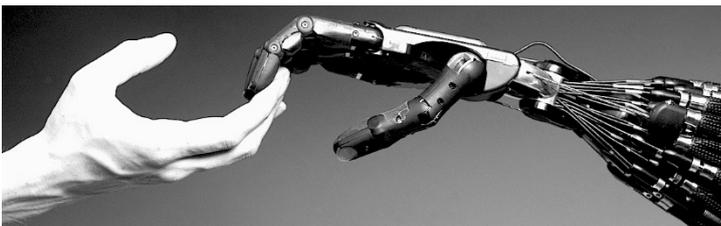


"Ocado's current Order Storage Retrieval machine, where partially or fully completed basket are sorted, depends on human staff."

"Automated warehouses have been in use for decades and Ocado already uses a variety of robots in its operations. Even the movement of the people working in its warehouses is guided by technology to ensure they work efficiently." [The Guardian](#)

Ocado may be a good place to explore the role of the human worker in relation to the robot worker.

Shadow Robot London



Interesting because the photo is very similar to Festo's Bionic Handling Assistant (elephant trunk) photo.

"With the Shadow Dextrous Hand, we have taken a truly anthropomorphic approach to robot manipulation"

"...the hand provides unique capabilities for problems that require the closest approximation of the human hand currently possible." [Shadow Robot](#)

Centre for Autonomous Systems University of Liverpool



The Centre for Autonomous Systems includes the research theme *autonomous robotics* with these concerns:

- the development of safe and trustworthy robotic assistants
- formal analysis of robot swarm algorithms to ensure reliability
- robot ethics and their verification
- decision making in dynamic, uncertain environments
- learning from interaction with human and robot team members
- safe and reliable human-robot teamwork

RoboSafe.org

University of Hertfordshire



The University of Hertfordshire has developed the KASPAR robot - described as a “social mediator” and “the minimally-expressive humanoid robot designed as a therapeutic toy for children with autism.”

“...robots may provide a safe and predictable tool for children with autism, that enables the children to learn social interaction and communication skills, addressing specific therapeutic and educational objectives (for example, being able to engage in direct eye-contact or shared eye-gaze), in an enjoyable play context.”

Robot House

DEVELOPERS

Name	Areas of research	Links to projects and photos
RURobots	Advanced robotics, flexible automation, Human Robot Interaction (HRI) and operator performance in the industries: Aerospace, Defence & Security, Food Handling & Advanced Processing, Medical, Nuclear Inspection & Decommissioning	
Shadow Robot	Dexterous hands for use in: Product testing, Manufacturing, Teleoperation, Food processing, Agri-tech, Pharmaceutical, Logistics, Events and exhibitions, Research and Development centres	Photo
iTechnic Ltd	David Bisset, works directly with/for euRobotics	LinkedIn Profile

Manufacturing Technology Centre	Assembly, manufacturing, industrial, software	Robotics & Autonomous Systems Photo
OC Robotics	Snake-arm robots, mobile robots, flexible robots, modular	Case Studies Photo
Ortelio Ltd	Software, service robots, EU Mario project	Mario Cobot Photo
Tharsus Vision	Custom electromechanical machines/stations	Case Studies Article on Cobots Photo

RESEARCH ORGANIZATIONS & UNIVERSITIES

Name	Areas of research	Links to projects and photos
Irish Manufacturing Research	Energy & Manufacturing	Linked to EU
Bristol Robotics Laboratory	Aerial, assisted living, biomimetic, neurorobotics, medical, soft robotics, swarm robotics, HRI	Research Themes Photo
Sheffield Robotics	Broad focus: speech & hearing, natural robotics, mobile machine, active touch, adaptive behavior, autonomous systems, etc.	Research Centers Evo-bots
Ocean Systems Laboratory, Heriot-Watt University	Marine robots, robotarium, autonomous systems, autonomous vehicles	Photo
University of Edinburgh, School of Informatics	Data	
University of Nottingham, Manufacturing Division	Continuum arms/surfaces undergoing large, controlled, deformations; Non-Linear multibody systems; Thermoforming of large-scale composites; Fabric based sensor technologies; Neonatal transport systems; Robotic enabled surgery systems; Soft actuation based exoskeletons; Aircraft assembly operations	Robotics Laboratory Photo
Centre for Autonomous Systems Technology	Projects: Trustworthy Robotic Assistants; Robotic Autonomy Simulation Lab (RASL); Verifiable Ethics; Human-Robot Teamwork; Lego Rovers: A Demonstration for School Age Children	

University of Hertfordshire	Social robot, care robot, companion robot, home robot, autism robot, robot house	Robot House Photo
University College London		
Lincoln Centre for Autonomous Systems Research, University of Lincoln, UK	Human-Centred Robotics & Assistive Technology	

COMPANIES & ASSOCIATIONS

CLAWAR Association Limited		Event Listing Collaborative Robot Safety
Research Centre in NDE (NDE Research Association)		
Ocado Limited	Grocery company; Warehouse robots	Vice News Article Photo
Chevron North Sea Limited		

24 Nov: “**People Interactions** deals with interactions between robots and people in smart spaces that transcend the physical and virtual divide by including factors such as human perception mechanisms, shared control in mixed human-robot teams, affective computing and natural multi-modal interfaces.” [Edinburgh Robotics](#)

15 Nov: Identified potential leads for mapping: Northern Robotics Network (individuals as persons interested in RAS2020, a UK robotics initiative) and EPSRC UK-RAS Network (public collaboration to one day include private sector partners).

UK-RAS Network identifies just four sectors: Healthcare, Transportation, Manufacturing, and Unmanned systems for aerospace, marine, environment and defense.

Within these sectors, research is categorized according to the technologies involved:

- multi-modal and multi-scale RAS
- robot learning, anthropomorphic & bio-inspired designs
- micro-engineering and fabrication
- smart actuators and sensors
- embedded intelligence
- robot vision, perception, machine intelligence, software agents, control and verification
- flexible adaptive manipulation, sensorimotor, social intelligence and formal verification for ethical, legal and safety issues
- integrated structures and electronics
- human-robot interaction, simulation and teleoperation across scales

[UK-RAS.org](#)