Job Title: Industrial Automation and Digital Twin Development (KTP Associate)
Job Description & Specification

JOB DETAILS

Department:	Engineering	**Salary Band:**	£35,000 to £43,300 subject to experience
Hours of Work	Full Time (40 hours)	**Contract Type:**	Fixed Term – 27 months
Responsible To:	Dr Marcelo Precoppe, Reader in Agricultural Engineering, Harper Adams University. Mark Hancox, Engineering Manager, Sandfields Farms Ltd		
Work Location:	Sandfields Farms Ltd, Pershore, Worcestershire		
Holiday Allowance:	23 days		

JOB PURPOSE

The Knowledge Transfer Partnership (KTP) Associate will lead the development of the world's first fully automated spring onion processing line, integrating advanced digital twin simulation with bespoke robotics and automation technologies. Working in partnership with Harper Adams University and Sandfields Farms Ltd—part of the G's Group and a major UK producer of fresh vegetables—the Associate will drive innovation that addresses critical labour dependency challenges and strengthens the long-term competitiveness of the business.

The purpose of this role is to design, model, validate, and support the implementation of advanced automation solutions within a live agricultural production environment. The Associate will embed cutting-edge simulation capability within Sandfields Farms, enabling the development of novel automated processes for spring onion singulation, trimming, labelling, packing, and overall process control. This position provides hands-on experience in multiphysics simulation, robotics integration, agricultural engineering, and user-centred design, delivering high-impact technological and commercial outcomes for both industry and academia.

MAIN ACTIVITIES & RESPONSIBILITIES

- Lead development of a digital twin of the spring onion wash and packing line using advanced multiphysics simulation tools, ensuring accurate calibration and validation against operational performance data.

- Analyse current production processes, identifying inefficiencies, constraints, and automation opportunities across singulation, trimming, labelling, packing, and associated control systems.

- Design, model and test automation concepts within the digital twin environment to de-risk physical prototyping and accelerate development of viable engineering solutions.

- Support physical prototyping and on-site trials, working with engineering teams to integrate robotics, sensing, control and vision technologies into an operational production environment.

- Quantify operational, performance, and economic benefits of proposed automation solutions, producing evidence-based recommendations for adoption.

- Embed digital simulation capability within Sandfields Farms by developing tools, documentation, procedures, and training materials for long-term business use.

- Lead participatory design activities, engaging production, engineering and management teams to capture requirements, test concepts, and ensure alignment with operational needs.

- Produce and deliver technical documentation, including reports, specifications, presentations, and updates for Local Management Committee meetings and other stakeholders.

- Contribute to academic and industrial dissemination, including publications, case studies, and knowledge exchange activities arising from the project.

- Manage day-to-day project operations, including data collection, experimental planning, supplier liaison, risk assessment, and progress reporting.

- Work collaboratively with academic and industrial supervisors to deliver project milestones in line with the KTP workplan.

PERSON SPECIFICATION

	Essential	Desirable
Qualifications	MEng or PhD in Mechanical Engineering, Agricultural Engineering, or related discipline. Advanced proficiency in CAD modelling and engineering design software. Strong technical computing and coding capabilities.	Background in multiphysics simulation including Discrete Element Method (DEM), Computational Fluid Dynamics (CFD), Finite Element Analysis (FEA), or Multi-Body Dynamics (MBD). Experience in robotics programming and control systems.
Experience	Proven track record in CAD-based engineering design and development. Experience with mechanical systems design and manufacturing processes. Project management experience delivering technical projects to schedule and budget. Evidence of effective communication and technical documentation.	Experience with automation systems and manufacturing process optimisation. Previous involvement in industrial automation projects. Background in agricultural processing or food manufacturing. Experience with participatory design methodologies and stakeholder engagement.
Knowledge/Skills	Expert-level CAD modelling and engineering design capabilities. Project management and technical planning capabilities. Commercial awareness and ability to work within industrial constraints. Strong interpersonal and collaborative working skills. Ability to engage effectively with diverse stakeholders from operators to senior management.	Knowledge of automation systems including robotics, control systems, and machine vision. Experience with simulation software packages. Understanding of industrial control systems and automation integration. Competency in image processing technologies. Knowledge of embedded programming for robotic systems.
Personal Qualities	Innovative problem-solving mindset capable of addressing unprecedented technical challenges. Self-motivated and proactive approach to project delivery. Resilience and adaptability in dynamic industrial environments. Commitment to knowledge transfer and capability embedding. Professional integrity and strong ethical standards.	Entrepreneurial mindset and interest in commercial exploitation of research. Enthusiasm for agricultural technology innovation. Ability to work independently with minimal supervision. Strong presentation skills for academic and industry audiences

| | Willingness to learn new simulation methodologies. | |