



Job title	Research Associate/Fellow in Machine Learning for 3D Printing (Fixed Term)	Job family and level	R&T Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Engineering/ Centre for Additive Manufacturing	Location	L4 and Jubilee Campus

Purpose of role

This post is part of the EPSRC Programme Grant “Dialling Up Performance for On Demand Manufacturing”, a collaboration between the Universities of Nottingham, Cambridge, Loughborough, Strathclyde and Reading. The overall project aim is to create a TOOLKIT that will aide users to achieve their product goals through speeding up materials selection, design and manufacturing. This will be achieved through the adoption of software and hardware that both guides the user but also utilises high throughput approaches to rapidly evaluate candidates. The focus of this specific role within the team is to collate, curate and analyse data associated with 3D printing and 3D printing materials, and to develop and use machine learning or other appropriate methods to build up tools to predict printing outcomes. The ideal candidate will have experience with collecting and curating data ready for processing and analysis with machine learning methods, an ability to develop automated methods to screen literature data and a willingness to work with team members to improve data collection in house.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time per year
1	- To collect pertinent 3D printing data via experiments or simulations, via colleagues or from literature - Curation of collected data through inspection and collaborating with other researchers within project - Design, build and execute code for collection, curation and analysis of data - Develop algorithms for the prediction of optimal materials for 3D printing and optimal 3D printing parameters - Work closely with colleagues within project to ensure high-quality data acquisition and maintenance	65%
2	Production of reports, publications, presentations and travel to period of collaborative work at the industrial collaborators site, scientific meetings and/or outreach to the industry, scientific community and general public.	15%

3	Maintenance of relevant software and laboratory equipment and training of other researchers and students in the operation of the equipment or software.	5%
4	Liaison meetings with partners.	5%
5	Supervision of project and PhD students.	5%
6	Any other duties appropriate to this post as required by their line manager.	5%

Person specification

	Essential	Desirable
Qualifications/ Education	PhD (or be about to obtain) or equivalent in Engineering, Data Science or equivalent Science / Engineering degree	
Skills/Training	- Ability to code in scientific software languages / packages such as Python, R and Matlab for the analysis and presentation of data - Ability to use approaches such as machine learning to scrape, collect, mine and organise data, and develop the tools and models to predict outcomes from future experiments or guide user decisions - Strong organisational skills and project management. - Excellent communication and presentation skills. - Effective recording of processes and datasets.	- Ability to use 3D printing systems such as SLA, DLP and similar vat polymerisation techniques - Ability to use and / or develop software for modelling of material properties - Understanding of polymer chemistry and formulation - Training in health and safety/risk assessment. - Skills in writing bids for research grants. - Knowledge of additive manufacturing techniques
Experience	- Significant demonstrated ability of teamwork in interdisciplinary setting. - Experience of publication of academic journal papers and reports. - Demonstrated creativity and leadership in problem solving. - Experimental design, taking measurements, interpretation and analysis.	- Liaising with external partners. - Designing, building or maintaining equipment. - Maintenance of lab equipment.



Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people	Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.
Taking ownership	Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.
Forward thinking	Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.
Professional pride	Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.
Always inclusive	Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others



