University of Nottingham
UK | CHINA | MALAYSIA

Role profile

Job title	Research Associate/Fellow in 3D printing for healthcare	Job family and level	Research 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	Jubilee Campus, Advanced Manufacturing Building

Purpose of role

This role will be part of a team working on a new EPSRC funded Programme Grant “Dialling Up Performance for On Demand Manufacturing” (grant reference: EP/W017032/1), that is led by Prof Ricky Wildman. The role will support the Investigator team in achieving the Programme Grant’s overall research objectives by conducting research to enable us to automate the screening of materials and design of 3D printed objects, particularly those relating to medicine manufacturing or healthcare.

The role holder will develop and use additive manufacturing / 3D printing to create structures for the delivery or manufacture of healthcare devices. Their focus will be on photocurable systems, primarily multimaterial inkjet-based 3D printing and projection micro stereolithography. The role will particularly focus on a newly acquired Notion N.Jet Lab platform capable of multi-material inkjetting where they will develop the strategies and perform any required modifications that will enable the manufacture structures suitable for the delivery or manufacture of medicines.

As part of the multidisciplinary, multi-centre Programme (consisting of a team > 10 researchers) you will work under the direction of Profs Richard Hague and Ricky Wildman (Faculty of Engineering). The overall Programme aims to create a toolkit and workflow for the rapid identification of materials, formulations and designs that will speed up the adoption of 3D printing, especially within a healthcare context: this role will be focused on developing the techniques necessary for us to conduct screening, particularly relating to multimaterial 3D printing.

The role holder will be expected to develop knowledge of 3D printing and collaborate with material scientists to ensure success and alongside computational scientists who will use the captured data to develop *in silico* screening approaches. The role holder is expected to have strong self-motivation and creativity and will also have responsibility for writing up their work in order to contribute to and / or lead the publishing of outcomes. The researcher is expected to hold the values of the University of Nottingham: they will contribute to a positive research culture, commit to an ethos of collaboration and be willing to support the development of others, including undergraduates, postgraduates and other researchers.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	**% time per year**
1	To plan and conduct research using established approaches, methodologies and techniques within the research area and support the development of improved methodologies to enhance the projects goals	30%
2	To analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights to research area.	35%
3	To contribute to writing up research findings for publication.	7%
4	To assist with the preparations, proposals and applications to both external and/or internal bodies for funding, contractual or accreditation purposes.	7%
5	To build internal and/or external contacts to develop knowledge and understanding, forming relationships for future collaborations.	3%
6	To assist in the operational aspect of research networks, for example, supporting research meetings and updating databases etc and contribute to collaborative decision making with colleagues in area of research.	3%
7	To provide guidance as required to support staff and students, where appropriate in own area of expertise.	5%
9	To plan and manage own research activity and resolve problems, if required, in meeting own/team research objectives and deadlines in collaboration with others.	10%

Person specification

	Essential	Desirable
Skills	▪ Excellent oral and written communication skills, including the ability to communicate with clarity on complex information. ▪ Demonstrable skills (in the form of published work and PhD thesis) in the use and development of Additive Manufacturing systems ▪ Analytical ability to facilitate conceptual thinking, innovation and creativity. ▪ Effective laboratory note-taking and logging of experiments and data. ▪ Ability for independent research within the context of a team. ▪ Ability to prioritise and organise resource requirements and deploy effectively. ▪ Strong analytical ability to analyse and illuminate data, interpret reports, evaluate and criticise texts and bring new insights.	▪ Ability to foster a research culture and commitment to learn in others. ▪ Knowledge and background in the integration of mechanical and electronic systems (mechatronics). ▪ Experimental methods and analysis techniques relating to material and structural performance. ▪ Familiar with Labview, Solidworks, Matlab or similar software for part design and the control of mechatronic systems.
Knowledge and experience	▪ Experience of developing new approaches, models, techniques or methods. ▪ Knowledge of methods (inc. experimental) for validation and testing of mechatronic systems. ▪ Experience of working in a multidisciplinary team. ▪ Demonstrated creativity and leadership in problem solving. ▪ Experience in the operation, maintenance and protocol development for 3D printing, ideally including vat photopolymerization and / or ink jetting.	▪ Knowledge of smart/responsive biomaterials. ▪ Experience of working and analysing large datasets ▪ Liaising with external partners.
Qualifications, certification and training (relevant to role)	▪ PhD (or about to obtain) in Engineering or Physical Sciences	▪ Training in health and safety/risk assessment.

As part of this, we welcome a diverse population to join our work force and therefore encourage applicants from all communities, particularly those whose protected characteristics under the Equality Act 2010, are not well-presented in our current staff body.

The University is a signatory of the Declaration on Research Assessment (DORA). As such we commit to focus on the scientific content of publications (where requested or provided as part of the recruitment and selection process) as a basis for review of quality, and consideration of value and impact of research conducted, rather than any proxy measures such as Journal Impact Factor.

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 friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.
Taking ownership	Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.
Forward thinking	Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
Professional pride	Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.
Always inclusive	Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others