Job Description

Job title:	Software Engineer
Division:	Cancer Division
Board/corporate function:	Surgery & Cancer
Salary band:	Band 7
Responsible to:	Ask the Cancer Centre Project Lead, Oncology General Manager
Accountable to:	Cancer Division Divisional Manager
Hours per week:	37.5
Location:	UCLH 250 Euston Road (Possibility of hybrid working)

University College London Hospitals NHS Foundation Trust

University College London Hospitals NHS Foundation Trust (UCLH) is one of the most complex NHS trusts in the UK, serving a large and diverse population.

We provide academically led acute and specialist services, to people from the local area, from throughout the United Kingdom and overseas.

Our vision is to deliver top-quality patient care, excellent education and world-class research. We provide first-class acute and specialist services across eight sites:

- University College Hospital (incorporating the Elizabeth Garrett Anderson Wing and Grafton Way Building)
- National Hospital for Neurology and Neurosurgery
- Royal National ENT and Eastman Dental Hospitals
- Royal London Hospital for Integrated Medicine
- University College Hospital Macmillan Cancer Centre
- The Hospital for Tropical Diseases

We are dedicated to the diagnosis and treatment of many complex illnesses. UCLH specialises in women's health and the treatment of cancer, infection, neurological, gastrointestinal and oral disease. It has world class support services including critical care, imaging, nuclear medicine and pathology.

We are committed to sustainability and have pledged to become a carbon net zero health service, embedding sustainable practice throughout UCLH. We have set an ambitious target of net zero for our direct emissions by 2031 and indirect emissions by 2040.

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1

UCLH Vision and Values

At UCLH, we have a real 'One Team' ethos, and our values – safety, kindness, teamwork and improving, are central to the way we work. This is supported by our staff, who voted us as the #1 NHS Acute Trust to work for in the whole of England.

The Trust is committed to delivering top quality patient care, excellent education and world-class research.

We deliver our vision through values to describe how we serve patients, their families and how we are with colleagues in the Trust and beyond.

We put your safety and wellbeing above everything

Deliver the best outcomes	Keep people safe	Reassuringly professional	Take personal responsibility

We offer you the kindness we would want for a loved one

Respect individuals	Friendly and courteous	Attentive and helpful	Protect your dignity

We achieve through teamwork

Listen and hear	Explain and involve	Work in partnership	Respect everyone's time

We strive to keep improving

Courage to give and receive feedback	Efficient and simplified	Develop through learning	Innovate and research

Equality, Diversity, and Inclusion at UCLH

At UCLH, we take equality of opportunity seriously and are committed to being a diverse and inclusive employer, with a culture that creates a real sense of belonging and trust. Respect, inclusion and sensitivity are hallmarks of quality of our care. That is why it is our fundamental aim, to recruit, retain and promote a diverse mix of people from all backgrounds, cultures, and perspectives, who are representative of our local communities to support our world class research, innovation, and creativity. We are proud to have 5 different networks that are owned and led by our staff which give a voice to all our staff to feed up to leadership of the organisation, including the Trust board, thus creating a sense of community and support and help drive cultural change to become a more inclusive organisation.

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2

Our staff networks are:

- Black, Asian and Minority Ethnic (BAME) Network
- Lesbian, Gay, Bisexual Transgender, Queer, Intersex and Asexual (LGBTQIA+)
- Women's
- Disability Network
- Mental Health Network

Department / Division

The Cancer Division, UCLH Digital Innovation Hub (DiH), and Innovation Directorate are collaborating with the North Central London Cancer Alliance (NCLCA) on an ambitious project to revolutionize patient communication by developing an AI-enabled chatbot. This project aims to leverage the power of artificial intelligence and Generative Pre-trained Transformers (GPTs) to improve patient experience, increase operational efficiency at UCLH, and promote equitable, person-centered care in the North Central London (NCL) region.

The primary output is the creation of a chatbot that can effectively communicate with patients, providing them with relevant information and support. The secondary output focuses on using the knowledge gained from developing the chatbot to create guidelines for future AI app developers and commissioners. This approach helps ensure efficient use of funding and minimizes unnecessary duplication in the short term. In the long term, it aims to lower the barriers to implementation, positioning NCL as a leader in the practical application of these technologies.

Job Purpose

- Aim to deliver a working proof of concept software application powered by a large language model (LLM) by 31st March 2025.
- The Software Engineer will work with a multidisciplinary team comprising of clinical staff, NHS managers, researchers and designers to deliver the proof of concept 'bot'.
- The post holder will be expected to assist with user research and evaluation.
- In addition to the project delivery team, the post holder will have the opportunity to interact with a broad range of professionals within the organisation, working closely with local advisory groups that will provide guidance and mentorship to the project.

Key Working Relationships

- Project Lead
- DIH
- The UCLH lead data architect
- General Manager- Oncology

1. Main Duties and Responsibilities

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3

- Develop and test a conversational AI system.
- Ensure all data is handled in accordance with the applicable Data Governance arrangements and network security policy.
- Develop an understanding of the cancer patient experience and how software can be used to improve clinical and experiential outcomes and reduce health inequalities.
- Design and implement a robust evaluation strategy (both automated and manual testing).
- Keep up to date with developments in the AI field.
- Engage with key stakeholders in UCLH digital teams to define the architectural requirements for a system that can be deployed within the NHS.
- Contribute to the thinking around risk assessment and safe implementation.
- Present work at relevant local, regional and national forums.
- Contribute to a positive digital innovation culture and UCLH.
- Help develop the technical understanding of other members of the team and wider stakeholders.
- Contribute to funding applications to further develop the system.
- Documentation of the solution.

Technical:

- Design and develop one or more 'bots' powered by large language models using a RAG architecture and Microsoft co-pilot studio.
- Connect to existing information systems to assemble information on which to tune the LLM system and extract question answer pairs.
- Develop an engaging user interface according to specifications provided by the designers and user researchers on the team.
- Connect the 'bot' to existing conversational channels using existing tools such as Microsoft Teams.
- Design, implement and evaluation a testing strategy.
- Provide technical documentation throughout the project.

Planning and Resource Management:

- Ensure the timely delivery of key required outputs is achieved.
- Undertake necessary research and training to ensure that personal levels of technical expertise are maintained and developed.
- Work in a collaborative way with all members of the project team and the UCLH Cancer Division Digital Healthcare Board.

Leadership:

- Support staff at all levels with the overall management objectives of the project.
- Provide clear and visible leadership on all software development issues.

Communication & Networking:

- Work as part of a multidisciplinary team of clinical staff, NHS managers, researchers and designers

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4

within the collaboration as well as other related organisations and develop good working relationships.

- Discuss progress and provide regular reports to the Project Lead.
- Liaise with the stakeholders in UCLH digital teams to ensure a consistent and coherent approach to enterprise-wide architectural issues on behalf of clinical research.
- Communicate effectively data management solutions to a range of internal and external stakeholders at all levels in various meetings.

Decision Making, Planning and Problem Solving:

- Participation in the strategic planning of the project and the product development roadmap
- The post holder will be responsible for day-to-day decisions in carrying out software development tasks for the project.

Financial Management:

- Assist as required in preparing funding applications where required.

Other:

The job description is not intended to be exhaustive, and it is likely that duties may be altered from time to time in light of changing circumstances, following consultation with the post holder.

You will be expected to actively participate in annual appraisals and set objectives in conjunction with your manager. Performance will be monitored against set objectives.

- To comply with all Trust Policies and Procedures, with particular regard to
- Risk Management - Health & Safety - Information Governance
- Confidentiality - Data Quality - Freedom of Information
- Equal Opportunities - No Smoking - Being Open: a duty to be candid
- All staff have a responsibility to comply with the current infection prevention and control policies, procedures and standards and ensure they have received an annual update on infection prevention and control issues including hand hygiene. All staff should practice and encourage appropriate hand hygiene and act professionally to ensure the hospital environment is clean, safe and tidy.
- To perform your duties to the highest standard with particular regard to effective and efficient use of resources, maintaining quality and contributing to improvements.
- To follow all the Trust Security policies and procedures and be vigilant to ensure the safety and secure environment for care.
- All staff that have access to or transfers any data are responsible for those data, it must be kept secure and they must comply with the requirements of the Data Protection Act 1998 and the common law on confidentiality. All data must be kept in line with the Trust's policies and procedures. Data includes all types of data i.e. patient, employee, financial, electronic, hard copies of printed data or handwritten data etc.
- The post holder is responsible for data quality and complying with the policies, procedures and accountability arrangements throughout the Trust for maintaining accuracy and probity in the recording of the Trust's activities.

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5

- The Trust is committed to carefully screening all staff who work with children and vulnerable adults. If this applies to this post, the appointment will be subject to a satisfactory Disclosure and Barring Service disclosure (formerly the CRB disclosure) of the appropriate Level.
- All staff will receive training on Child Protection -Safeguarding Children Policies and Procedures as part of Induction and updates, this will equip the post holder with the knowledge of what you will need to do if you have concerns about the welfare of a child/young person under aged 18.
- Participate in an annual Appraisal and Development Review meeting and ensure you are meeting the Trust's Performance Standard for the post.

Key Working Relationships

- Project Lead
- DIH
- The UCLH lead data architect
- General Manager- Oncology

Agenda for Change job factor plan terminology should be avoided where   possible and avoid the use of factor names as your subheadings unless they are relevant to your role.

N.B.Some roles require additional levels of checks as a part of the employment process i.e. roles which come into contact with children, vulnerable adults or their families should have the responsibility towards their welfare, explicitly stated in the job description.

Other

The job description is not intended to be exhaustive and it is likely that duties may be altered from time to time in the light of changing circumstances and after consultation with the post holder.

You will be expected to actively participate in annual appraisals and seek to implement our Equality, Diversity and Inclusion Policy and the objective to promote equality of opportunity in relation to the duties of the post. Objectives will be set, that your performance will be monitored against in conjunction with your manager.

Sustainability at UCLH

You will be required to demonstrate a personal commitment to the Trust's Net Zero Strategy and to take personal responsibility for carrying-out your work duties in a way which is compliant with this strategy.

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6

Person Specification

REQUIREMENTS	E/D*	How Tested? Application/Test Interview/Reference			
		A	T	I	R
Qualifications					
Degree or other qualification or evidence of relevant on-job qualification, e.g. Informatics, Software Engineering, Computer Science, or Systems Engineering at Bachelor level	E	√			
Software Engineering, or relevant Professional IT qualification to Masters level or equivalent experience	E	√		√	
Experience					
Experience of full stack software development and deployment	E	√		√	
Experience of preparing detailed technical documentation	E	√		√	√
Experience of development of conversational AI systems	D	√		√	√
Experience with user interface/experience design	E	√		√	
Experience of information governance and/ or the NHS IG Toolkit	D	√		√	
Experience with research governance policies and procedures (IRAS, ISAC, NHS R&D, REC)	D	√		√	
Skills, Abilities, Knowledge					
Excellent software development skills	E	√		√	√
Experience with querying data using SQL and data mining	E	√		√	
Experience with software development good practices (version control, tests, code reviews)	E			√	
Experience of design or user research to determine product requirements	D			√	

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7

REQUIREMENTS		How Tested? Application/Test Interview/Reference			
	E/D*	A	T	I	R
Very good communication skills including the ability to articulate technical content to non-technical colleagues and senior managers	E	√		√	
Experience working with health data	D			√	
Ability to prepare and maintain technical documentation	E	√		√	
Broad range of IT technical skills and wider technical awareness	E	√		√	
Experience in coaching colleagues	D	√		√	
Understanding and/or experience of clinical systems deployment in a large complex healthcare environment	D	√		√	
Other Requirements					
Understanding of Equal opportunities & Confidentiality issues in NHS	D			√	

A= Application I= Interview R= References T/P = Test/Presentation