



## Job Description

<b>College/Management Unit</b>	College of Health and Agricultural Sciences
<b>School/Unit</b>	UCD School of Medicine (SoM) / Systems Biology Ireland (SBI)
<b>Post Title &amp; Subject Area</b>	<b>Lecturer (above the Bar; Assistant Professor) in Artificial Intelligence &amp; Machine Learning for Biomedicine</b>
<b>Project</b>	Personalised and Precision Medicine
<b>Post Duration</b>	5 years
<b>Reports to</b>	Head of School of Medicine or nominee
<b>HR Reference No.</b>	012542
<b>Applications via website</b>	<a href="https://www.ucd.ie/workatucd/jobs/">https://www.ucd.ie/workatucd/jobs/</a>

### Position Summary

Modern biomedicine becomes increasingly data driven. This position embraces this development to create a post at the intersection of computer science, biomedicine and systems biology. UCD has a strong track record in interdisciplinary research and has built an environment that promotes such interactions to advance new fields of research that are timely, innovative, and impactful. Towards this aim the UCD School of Medicine and Systems Biology Ireland have created a position for an ambitious investigator who will build a cutting-edge research programme that develops and applies Artificial Intelligence (AI) and Machine Learning (ML) approaches to biomedical problems including personalised and precision medicine (PPM). PPM is an EU as well as a UCD strategic priority, in addition to its importance to industry in drug development. The implementation of PPM requires seamless interactions between advanced computer science and medicine with systems biology providing the translational conveyor belt. This post will sit at these interfaces and is expected to leverage a highly interdisciplinary, vibrant environment to work with clinicians, biologists, mathematicians and computational colleagues to build a strong research programme in AI/ML for biomedicine.

**The UCD School of Medicine** (SoM, <http://www.ucd.ie/medicine/>) is one of Ireland's leading medical schools within the country's largest University. It has an extensive portfolio of research, education and training programmes offering over 60 educational programmes, delivered by research-active academic staff within a modern health science campus and by experienced clinicians across a large clinical training network. The School has fifteen research centres (<http://www.ucd.ie/medicine/ourresearch/researchcentres/>), and UCD is the lead academic partner in the newly established Ireland East Hospital Group, the largest hospital group in the country.

**Systems Biology Ireland** (SBI, <http://www.ucd.ie/sbi/>), established in 2009, is a SoM Research Centre. SBI has successfully developed an integrated mathematical modelling and experimental research programme focusing on the design of new diagnostic and therapeutic approaches to diseases, primarily cancer, based on a systems level, mechanistic understanding of cellular signal transduction networks. SBI uses mathematical and computational modelling approaches in combination with cutting edge experimental technologies in proteomics, genomics, advanced microscopy and flow cytometry as well as cell biology and molecular biology methods. SBI was ranked under the top 5 Systems Biology Centres worldwide by international review panels in 2014, 2016, and 2018.

The postholder will be placed in SBI and build a research programme focussed on the functional analysis of biomedical data through AI/ML. Of particular interest are the analysis of various omics data, data integration, and the development of predictive simulations and models for potential diagnostic and therapeutic applications in PPM. For this the postholder is expected to interact with colleagues across UCD including its hospitals and engage in ongoing research in SoM and SBI, in particular the Precision Oncology Ireland (POI) programme. POI is a strategic partnership between 5 Irish Universities, 6 Cancer Charities and 9 Industry Partners focusing on developing new approaches

towards the precision diagnostics and therapeutics for cancer (<http://www.precisiononcology.ie/>). The postholder is expected to engage with industry partners and other partners in POI. Participation in teaching is also expected with the successful candidate playing a lead role in the new MSc AI for Medicine and Medical Research. The position is for five years initially but we expect to make it permanent dependent on the establishment of a successful research programme and the sustainability of the teaching programme.

#### **Equality, Diversity, and Inclusion**

UCD is committed to creating an inclusive environment where diversity is celebrated, and everyone is afforded equality of opportunity. To that end the university adheres to a range of equality, diversity, and inclusion policies. We encourage applicants to consult those policies here <https://www.ucd.ie/equality/>. We welcome applications from everyone, including those who identify with any of the protected characteristics that are set out in our Equality, Diversity and Inclusion policy.

**Salary: €53,773 - €84,544 per annum**

Appointment on the above range will be dependent on qualifications and experience

#### **Principal Duties and Responsibilities**

- Engage actively in research and scholarly activity appropriate to the School, and in interdisciplinary areas where relevant
- Participate in the Precision Oncology Ireland research programme
- Maintain a high international reputation in terms of publication output and other dissemination activities
- Proactively contribute to strategic funding initiatives and apply for national and international grants including EU grant proposals
- Contribute to teaching at undergraduate and postgraduate level, in particular take a lead role in the new MSc in AI for Medicine and Medical Research
- Mentor and train students
- Promote inter-disciplinary and multi-disciplinary initiatives within the School, College and University including the UCD affiliated hospitals
- Participate in the administration of a School and appropriate University bodies, e.g. by serving on School and University committees as required
- Undertake other duties, as requested by the line manager, that are commensurate with the nature and grade of the post

#### **Selection Criteria**

Selection criteria outline the qualifications, skills, knowledge and/or experience that the successful candidate would need to demonstrate for successful discharge of the responsibilities of the post. Applications will be assessed on the basis of how well candidates satisfy these criteria.

##### Mandatory

- PhD in computer science, statistics, machine learning, computational biology, systems biology or other relevant discipline
- A solid knowledge of and practical experience in developing and applying AI/ML methods
- Expertise in a broad range of computational methods suitable for the analysis of omics data, e.g. genomics, transcriptomics, metabolomics and proteomics data.
- Proven experience in the development of new computational methodologies relevant to biomedical and biological problems
- Experience in working in an interdisciplinary environment
- A record of high quality research outputs and publications
- Record of student supervision and ability to teach in a subject area relevant to the post

##### Desirable

- A broad repertoire of technical skills and methods in computational methods for biological network analysis, such as network inference techniques, Bayesian methodologies, statistical classifiers, and different types of regression analysis.
- A good understanding of biology and/or medicine
- Experience of managing complex interdisciplinary projects including industry collaborations
- Experience in applying for grants
- A teaching qualification

## Further Information for Candidates

### Supplementary information

The University:	<a href="http://www.ucd.ie/aboutucd.htm">http://www.ucd.ie/aboutucd.htm</a>
The College/Management Unit:	<a href="http://www.ucd.ie/chas">http://www.ucd.ie/chas</a>
The School/Programme Office/Unit:	<a href="http://www.ucd.ie/medicine/">http://www.ucd.ie/medicine/</a> ; <a href="http://www.ucd.ie/sbi/">http://www.ucd.ie/sbi/</a> ;
Other (Please specify):	POI: <a href="http://www.precisiononcology.ie/">http://www.precisiononcology.ie/</a>

### Garda Vetting required:

NO

YES – Garda Vetting will be conducted for the recommended candidate(s) as part of the selection process for the post in accordance with the [UCD Garda Vetting Policy](#)

### Relocation Expenses

Will not apply

Will be applied in accordance with the UCD policy <http://www.ucd.ie/hr/policies/#d.en.31150>

### Informal Enquiries ONLY to:

Name:	Prof Walter Kolch
Title:	Director, SBI
Email address:	<a href="mailto:walter.kolch@ucd.ie">walter.kolch@ucd.ie</a>

### Applications via:

<https://www.ucd.ie/workatucd/jobs/>

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