



Maynooth University Ollscoil Má Nuad

Hamilton Institute & Department of Computer Science 2 x Post-Doctoral/Senior Post-Doctoral Researcher or Technical Officer positions (Molecular/DNA Computing; 24-month contracts)

The Roles

Applications are invited for two positions: Postdoctoral Researcher, Senior Postdoctoral Researcher, and/or Technical Officer in the field of molecular and DNA computing in the group of Professor Damien Woods at the Hamilton Institute, with a possible co-appointment in the Department of Computer Science. Funding is provided by a Maynooth University support award for the five-year ERC project *Active-DNA* on the topic of molecular computing. Posts will run for 24 months.

The **Post-doctoral/Senior Post-doctoral** role involve engineering DNA-based molecular computers and nanoscale machines in the wet-lab using carefully designed and clever experiments, as well as mathematically characterising their computational power. Successful candidates will develop their research skills, will publish high-quality work, and will have the opportunity to apply for funding, supervise students and advance their academic career. We seek candidates willing to take the lead on research projects in an exciting and foundational research topic and who wish to define the future of the field. The ideal candidate should have a PhD and a background in the theoretical computer science and/or experimental practice of DNA-based molecular computing. Candidates with a theoretical background and experience are welcome but should try to demonstrate a keen interest and/or understanding of chemical, biochemical, physical theory relevant for thinking about molecular processes such as self-assembly, molecular robotics and/or chemical reaction networks. Also, candidates with a background in bioengineering, synthetic biology, molecular self-assembly, physics, chemistry and other related fields will be considered, but should have an interest in applying ideas from algorithms and computer programming to the molecular setting. The ideal candidate should have a history of outstanding research publications commensurate with career stage, which will be used as criteria to assess suitability for Postdoctoral or Senior Postdoctoral roles.

The **Technical Officer** role requires a background in use of lab techniques, primarily atomic force microscopy and/or fluorescence microscopy. The role will involve use of other equipment such as fluorescence plate reader, qPCR, as well as preparing samples (pipetting), various wet-lab techniques and play a supporting role to ongoing projects. Familiarity and competency with wet-lab procedures/techniques would be best, but other experimental research experience may also be considered as relevant. The role will include some administrative duties, including managing a small lab, ordering of supplies, safety, routine equipment maintenance. There will be room to take a leading



role on an experimental project in DNA computing, in collaboration with experienced group members, should the candidate demonstrate a willingness and competency to do so. Suitable candidates could be from an experimental physics, chemistry, or molecular biology background, and should have an honours degree or equivalent, in Science, Instrumentation or a related discipline. Useful assets include the ability to write code for taking and analysing data (e.g. experience with Python, C++, Java, R, Matlab or other programming languages for data analysis), experience at quantitative thinking and analysis of data, and willingness and enthusiasm to support cutting-edge research on molecular computing.

The level of appointment and salary will be in accordance with the experience of the candidate. Please see <https://www.dna.hamilton.ie/woods/> and <https://www.dna.hamilton.ie/> for more details about the research group. Informal queries may be addressed to: damien.woods@mu.ie.

Hamilton Institute

The Hamilton Institute is the university's pillar research institute that aims to bridge the gap between mathematics, computation and its applications. Founded in 2001 with seed funding of €5M awarded by Science Foundation Ireland (SFI) it has won competitive research funding exceeding €35M.

The Institute's commitment to real applications work is reflected in its strong industry links, including partnerships with IBM, Medimmune, AstraZeneca and Unilever. Its commitment to research excellence is reflected in its research output as well as active links with leading international research groups (at MIT, Caltech, Imperial College London, the Walter and Eliza Hall Institute of Medical Research, Institute Curie, amongst others) and consistently high ratings in external quality reviews. The Institute has an active international visitor and workshop programme.

Recognition of its strategic role both within NUI Maynooth and nationally is reflected in its success in the last two rounds of PRTL national infrastructure funding where it was awarded recurrent funding to establish structured graduate programme and €4.5M capital funding for new research space.

Major focuses of research activity at the institute currently include the computational sciences, molecular computing, machine learning, optimization, probability and statistics, and the mathematics of networks.

The University

Maynooth University is committed to a strategy in which the primary University goals of excellent research and scholarship and outstanding education are interlinked and equally valued.

Maynooth University is one of the four constituent universities of the National University of Ireland and in 2017 was placed in the global top 100 universities under 50 years old in the Times Higher Education World University Rankings. Formally established as an autonomous university in 1997, but tracing its origins to the foundation of the Royal College of St. Patrick in 1795, Maynooth University draws on a heritage of over 200 years' commitment to education and scholarship. It is located in the University town of Maynooth, 25km from the centre of Dublin, Ireland's capital city.

The University is a modern institution - dynamic, research-led, engaged, and grounded in the traditions of liberal education. With more than 12,000 students, Maynooth is Ireland's fastest-growing university, yet we retain a collegial campus culture that is central to our ability to bring significant interdisciplinary expertise to bear in tackling some of the most fundamental challenges facing society today. MU has a distinctive disciplinary profile compared to other universities in Ireland, with research and teaching strengths in humanities and social sciences, science, electronic engineering, business, law and teacher education. The University has major research institutes and centres in the areas of: humanities;, social



sciences; mathematics, computation and communication; human health; business and service innovation; climate change; and Geocomputation.

The University has, under the *University Strategic Plan 2012-17*, further enhanced its capacity and reputation for research, transformed its undergraduate curriculum, grown postgraduate enrolments and become even more international, diverse and engaged. MU makes, and is seen to make, an important and distinctive contribution to our national system of higher education.

Maynooth University is now embarking upon a new and exciting phase with the development of the *University Strategic Plan 2018-22*, with a vision to consolidate the international reputation of Maynooth University “*as a university known for outstanding teaching, excellent research, a global outlook, effective engagement with the society we serve, and our distinctive approach to the challenges facing modern higher education.*”

The *University Strategic Plan 2018-22* builds on the institution’s strengths and accomplishments, concentrating energy and resources on further development in research and postgraduate education. The strategy focuses on:

- targeted investment in research capacity in a number of priority areas;
- extending the postgraduate portfolio and growing the postgraduate community;
- realising the full benefits of our innovative undergraduate curriculum;
- enhancing the student experience;
- comprehensive and ethical internationalisation;
- equality diversity inclusion and interculturalism as enablers of academic excellence

These strategic goals are underpinned by a commitment to invest, first and foremost in people and opportunities for their development and success, and also in the systems and infrastructure required to achieve scholarly and educational objectives.

Selection and Appointment

- Only shortlisted candidates will be invited for remote video interview;
- It is anticipated that interviews will be held during November 2020;
- The appointment is expected to be effective from December 2020 or early 2021.
- Applicants should submit a CV along with a cover letter.
 - For Postdoctoral/Senior Postdoctoral applicants the cover letter should be a research statement of up to 4 pages articulating suitability for the position. Candidates are free to choose the content for their research statement as they please; suggested topics include their research vision and plans, as well as justification of why their experience, interests and research plans make them an ideal candidate.
 - Technical Officer applicants should use the cover letter as an opportunity to elaborate on their experience, ability to work with and support a research team and overall suitability for the role.

Data Protection Law

Maynooth University will process any personal data provided by you in connection with an application for this role in accordance with the General Data Protection Regulation and the Data Protection Acts 2018.

If your application is successful and you accept an offer of employment at Maynooth University, then your personal data will continue to be processed in accordance with Maynooth University’s Staff Data Privacy Notice.



Both the privacy notices and further information relating to data protection, including Maynooth University's other data protection policies and processes, can be viewed at <https://www.maynoothuniversity.ie/data-protection>

Salary

Post-doctoral Researcher	€37,874 - €43,782 per annum (6 points)
Senior Post-doctoral Researcher	€45,041 - €49,048 per annum (4 points)
Technical Officer	€38,611 – €51,258 per annum (7 points)

Appointment will be made in accordance with the Department of Finance pay guidelines.

*New entrants to the public sector will be appointed on the first point of the Technical Officer pay scale.

Application Procedure

Closing Date: 23:30hrs (local Irish time) on **Sunday, 25 October 2020**

Please note all applications must be made via our **Online Recruitment Portal** at the following link: <https://www.maynoothuniversity.ie/human-resources/vacancies>

Applications must be submitted by the closing date and time specified above. Any applications which are still in progress at the closing time on the specified closing date will be cancelled automatically by the system.

Late applications will not be accepted.

**Maynooth University is an equal opportunities employer
The position is subject to the Statutes of the University**

