Maynooth University
Ollscoil Mhá Nuad

Hamilton Institute
& Department of Computer Science
2x Post-Doctoral/Senior Post-Doctoral Researcher
and 1x Technical Officer/Senior Technical Officer
Molecular/DNA Computing; 24-month contracts
Advance notice of intention to advertise (this is not the final job advert)

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.

The Roles

Applications are invited for three positions: Postdoctoral Researcher, Senior Postdoctoral Researcher, and Technical Officer on the topics of DNA computing, DNA data storage and DNA nanostructures in the research group (https://dna.hamilton.ie/) of Professor Damien Woods at the Hamilton Institute, with a possible co-appointment in the Department of Computer Science.

EU and Irish national funding is provided by the DISCO project funded by the EIC Pathfinder Challenge programme, and the Active tiles project funded by Science Foundation Ireland Frontiers of the Future Programme (SFI FFP).

Description of Post-Doctoral and Senior Post-Doctoral Researcher Role
The **Post-doctoral and Senior Post-doctoral Researcher** roles involve engineering DNA-based self-assembly systems, DNA/molecular computers and DNA data-storage systems in the wet-lab. Specifically, topics include: (1) Designing DNA nanostructures for DNA computing and DNA storage, for the EIC DISCO project (DNA based Infrastructure for Storage and COmputation). (2) Control of nucleation for DNA tile-based self-assembly (SFI FFP project: Active DNA tiles for programmable nucleation of robust DNA). Both projects involve designing DNA nanostructures, including DNA origami and DNA tile-based systems. Ideal candidates will have familiarity with such systems. Candidates should demonstrate the ability to carefully design and execute wet-lab experiments. Another potential direction is on theory; mathematically and computationally analysing the computational power of molecular computers. The successful candidate(s) will develop their research skills, publish high-quality work, receive training and mentorship in grant funding applications, supervise students and advance their academic career. We seek creative individuals willing to **take initiative on research directions** in an exciting and foundational research topic and who wish to define the future of the field.

Furthermore, the ideal candidate for **Post-doctoral or Senior Post-Doctoral Researcher** should have a PhD (or equivalent research experience) and a background in experimental practice of DNA-based molecular computing, and/or in theoretical computer science. Candidates with a theoretical background and experience are welcome but should 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. In addition, candidates applying for the Senior Post-Doctoral Researcher should have relevant post-PhD experience suited to the role.

Description of Technical Officer/Senior Technical Officer Role
The **Technical Officer or Senior Technical Officer** role requires a background in use of lab-based experimental techniques. Example techniques include, but are not limited to: atomic force microscopy (AFM), fluorescence microscopy, bulk fluorescence assays (using qPCR machine, or fluorescence plate reader), agarose /polyacrylamide gel electrophoresis, etc. The role could involve use of other techniques including preparing samples via pipetting by hand, liquid handler and/or an acoustic liquid handler, and play a supporting role to several ongoing laboratory projects. We use python code to control lab equipment, so having familiarity with programming is a bonus, and at the very least there is expectation to be willing to learn how to program. Familiarity and competency with wet-lab procedures/techniques would be best, but other experimental research experience may also be considered as relevant. Mainly, the candidate needs to show an aptitude for lab-based experimental protocols and showing competence with lab equipment.

In addition, the **Technical Officer Officer or Senior Technical Officer** role will include some administrative duties, including managing a lab, ordering of supplies, instruction on safety procedures, routine equipment maintenance. There will be room to take a key role on experimental projects in DNA computing, DNA data storage and DNA self-assembly 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, molecular biology or bioengineering background, and should have an honours degree or equivalent relevant qualification, in Science, Engineering, Instrumentation or a related discipline. Useful assets include the ability to write code for taking and analysing data (e.g. experience with Python, Rust, C++, Java, R, Matlab or other programming languages for data analysis), an aptitude for and/or experience at quantitative thinking and data analysis, and willingness and enthusiasm to support cutting-edge research on molecular computing.

The level of appointment and salary (i.e. whether "**Senior**" or not) will be in accordance with the experience and demonstrated abilities of the candidate. Please see 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 pilar research institute that aims to bridge the gap between mathematics, computation and its applications. Founded in 2001 with support from Science Foundation Ireland, the Hamilton Institute has been internationally recognized for its work across communication networks, mathematical biology and fundamental mathematics.

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.

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

The University

Maynooth University is distinctive, a collegial institution focused on science and engineering, humanities, and social sciences, and equally committed to research, teaching and community engagement. Located in Ireland's only university town, its distinctive features and character owe much to its unique history and heritage. It provides a high-quality educational experience to over 15,000 students on a campus with 18th century roots and 21st century dynamism.

The strategic trajectory and accomplishments of Maynooth University, in the 25 years since its establishment as an autonomous public university, are exceptional, and a source of great pride to the university community, staff, students and alumni. Maynooth University is now acknowledged to be one of the leading young universities in the world, and in 2022 ranked # 1 in Ireland in the latest Times Higher Education (THE) Best Young University Rankings. Maynooth University's growing global reputation is based on the originality, quality, importance and impact of its research and scholarship, commitment to teaching and learning, the quality of academic programmes, and its leadership in widening participation in higher education. The sources of success are the dedication of its staff and the energy and engagement of its students.

Maynooth University is a place of lively contrasts – a modern institution, dynamic, rapidly-growing, research-led and engaged, yet grounded in historic academic strengths and scholarly traditions. With over 15,000 students Maynooth offers a range of programmes at undergraduate, postgraduate and doctoral level in the humanities, science and engineering and social sciences, including business, law and education. The University also offers a range of international programmes and partnerships.

Maynooth's unique collegial culture fosters an interdisciplinary approach to research, which its world-class academics bring to bear in tackling some of the most fundamental challenges facing society today. The University's research institutes and centres consolidate and deliver this impact as vibrant communities of learning, discovery and creation. Research at Maynooth also is very much central to its teaching and the University prides itself on placing equal value on its research and teaching missions.

Principles and Values

Maynooth University is committed to the following values:

• Scholarly rigour;
• Academic freedom;
• Integrity and ethical behaviour;
• Collegiality, transparency and trust;
• Equality, inclusiveness and social justice;
• Operational excellence, organisational flexibility and responsiveness;
• Dignity, respect and care for the individual.

Maynooth University Strategic Plan 2023 – 2028
The University's Strategic Plan 2023 - 2028 builds on our rich academic history and strong foundations to set out an ambitious and forward-looking path for the future of our University. This roadmap underscores our commitment to adapt to a changing world while staying true to our values.
Our vision is to be a university of excellence, opportunity and impact, having a significant stake in all three.

For more information about Maynooth University's future direction, please visit: https://strategy.maynoothuniversity.ie/

Plean Straitéiseach Ollscoil Mhá Nuad 2023 - 2028

Tógann Plean Straitéiseach na hOllscoile 2023 - 2028 ar ár stair acadúil shaibhir agus ar ár mbunchlocha láidre chun conair uaillmhianach agus cheannródaíoch a leagadh amach do thodhchaí ár nOllscoile. Soiléiríonn an treochlár seo ár dtiomantas do dhul i dtaithí ar dhomhan atá ag síorathrú agus ár ngníomhaíochtaí a chur in oiriúint dó, agus san am céanna a bheith dílis dár luachanna Ollscoile. Is í an fhís atá againn a bheith mar ollscoil feabhais, deiseanna agus tionchair, agus lámh láidir a bheith againn i ngach ceann de na trí ghné seo.

Léigh anseo le haghaidh breis eolais faoi thodhchaí Ollscoil Mhá Nuad: https://strategy.maynoothuniversity.ie/?lang=ga

Selection and Appointment
Only shortlisted candidates will be invited for interview
- Candidates invited for interview will be required to make a brief presentation;
- It is anticipated that interviews will be held during October 2024;
- The appointment is expected to be effective from as soon as possible thereafter.
- 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, interesting research directions, as well as justification of why their experience, interests and research plans make them an ideal candidate.
  - Technical Officer/Senior 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.
  - In either case, if seeking the "Senior" title, the candidate should make it clear in both the application and interview as to why they are suited to a more senior role, based on their experience, independence, demonstrated relevant capabilities & leadership, and so on.

Equality and Diversity
Maynooth University values the enrichment that comes from a diverse community and seeks to promote equality, prevent discrimination and protect the human rights of each individual. To learn more about our commitment to Equality and Diversity, please read the Maynooth University Equality and Diversity Policy / Polasaí Comhionannais agus Éagsúlachta. Additionally, as an Athena SWAN Bronze Award Institute, we are committed to advancing gender equality across the University.

We aim to reflect the diversity of the community we serve and welcome applications from all individuals, in particular from people underrepresented in our workforce.

Terms and Conditions Tenure	These are a full-time, temporary posts of 24 months duration. Post Doctoral Researcher – 24 months Senior Post-Doctoral Researcher – 24 months Technical Officer – 24 months
Location	The place of work is the campus of Maynooth University, Maynooth, Co. Kildare.
Salary	The following are merely indicative salaries, for salary scales see: https://www.maynoothuniversity.ie/human-resources/recruitment-selection/salary-scales Post Doctoral Researcher (2024): €44,347` Senior Post-Doctoral Researcher (2024): €52,194 Technical Officer (2024): €45,152 Senior Technical Officer (2024): € 59,295 An increment will apply after each 12 months of service. Appointments will be made in accordance with public sector pay provisions.
Hours of work	A 37-hour working week is in operation in respect of full-time positions (pro-rated for part-time positions). This can be reviewed or adjusted from time to time through national agreements.
Annual Leave	Annual leave and public holidays are provided for in the University policy: https://www.maynoothuniversity.ie/human-resources/policies/annual-leave-policy Annual leave will be allocated on a pro-rata basis for part-time and temporary positions.
University policies and schemes	Employees of the University will be subject to the terms of the University policies and schemes, available on the University website at: https://www.maynoothuniversity.ie/university-policies https://www.maynoothuniversity.ie/human-resources/policies
Pension	This is a pensionable post. Employees of the University will enter into a public sector pension scheme, details of the schemes are available at: https://www.maynoothuniversity.ie/human-resources/pension-information
Eligibility	Applications from **non-EEA citizens** are welcomed, applicants should note that eligibility is determined by the Department of Enterprise, Trade and Employment. Further information regarding eligibility is available at: https://enterprise.gov.ie/en/what-we-do/workplace-and-skills/employment-permits/employment-permit-eligibility/ Non-EEA applicants are responsible for ensuring they can secure a visa to travel to Ireland. Any offer of employment is conditional on applicants securing the appropriate employment permissions. **Former Irish Public Service employees - Certain Restrictions on Eligibility** Eligibility of applicants formerly employed by an Irish Public Sector body, and who availed of an Irish Public Service Redundancy or Incentivised Retirement Scheme under the Schemes below, may be affected: • Collective Agreement: Redundancy Payments to Public Servants • Incentivised Scheme for Early Retirement (ISER) • Department of Health and Children Circular (7/2010) • Department of Environment, Community & Local Government (Circular Letter LG(P) 06/2013) Applicants should ensure that they are eligible to be re-engaged in the Irish Public Service under the terms of such Schemes. Applicants should address queries with their former Irish Public Sector employer.
Garda vetting	Garda vetting or clearance may be required by the University.

Medical	The University may require a medical examination as a condition of employment.

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

Note about Funding

The *DISCO* project is funded by the European Union under Horizon Europe Grant number 101115422. Views and opinions expressed are however those of the author only and do not necessarily reflect those of the European Union or European Innovation Council and SMEs Executive Agency (EISMEA). Neither the European Union nor the granting authority can be held responsible for them. The *Active-tiles* project ("Active DNA tiles for programmable nucleation of robust DNA nanostructures") is supported by Science Foundation Ireland (SFI) Frontiers for the Future Programme (FFP) grant number 20/FFP-P/8843.

Application Procedure

Closing Date: To be decided. Please check updates https://dna.hamilton.ie/ for final job advert with a precise closing date.

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