



Maynooth University Ollscoil Mhá Nuad

Faculty of Science and Engineering Doctoral Scholarship: Department of Computer Science

Details of the Scholarship Award

The Faculty of Science and Engineering at Maynooth University are pleased to announce that a Maynooth University Doctoral Scholarship in the department of Computer Science will be available for a suitably qualified and successful applicant intending to commence their PhD studies in October 2026.

Project title: Multimodal Learning for Abdominal X-ray Report Generation with Large Language Models.

Supervisor: Dr Zi Ye with co-supervision from Dr Aidan Mooney.

Project Summary

X-ray image-based medical report generation (MRG) is a critical research problem in artificial intelligence, aiming to automatically describe clinical findings and impressions from X-ray images using natural language. It has the potential to significantly reduce diagnostic burden and improve clinical efficiency.

Recent advances in multimodal large language models (MLLMs) have shown promising progress in medical report generation. Nevertheless, existing research has largely focused on chest X-ray datasets, while abdominal X-ray data remains scarce and underexplored. The lack of clinically grounded abdominal X-ray datasets with paired reports limits the development and evaluation of multimodal models in this domain. In addition, current models often exhibit insufficient alignment between visual inputs and generated text. Recent studies further reveal that medical MLLMs frequently fail to accurately ground their predictions in clinically relevant image regions, leading to reduced reliability and interpretability.

To address these challenges, this project will construct a clinically grounded abdominal X-ray image–report paired dataset derived from real-world clinical data. A comprehensive benchmark will be established to evaluate representative existing models and validate the dataset’s usability. The project will also investigate efficient multimodal approaches for

abdominal X-ray report generation, with a focus on improving visual grounding and the alignment between visual information and generated clinical text.

Value of Maynooth University Doctoral Scholarship Award

The award is fully funded for up to four years, commencing October 2026.

The following funding is available for the successful applicant:

- Student stipend: €25,000 per annum;
- Annual Tuition Fees Support.

Duration of the Maynooth University Doctoral Scholarship Award

The scholarship is awarded for up to four years of full-time study, subject to satisfactory annual academic progression.

Role of the Student

The study is subject to the terms and conditions of MU Doctoral Scholarships and must be completed in accordance with the requirements set out in the Research Student Programme Stages as outlined in the [MU Regulations for Postgraduate Research Degrees](#).

The project topic is pre-specified with defined deliverables as outlined herein.

The project is organised around several tasks aligned with the research objectives outlined above.

The PhD duties will include:

- Working under the supervision of Dr Zi Ye, with co-supervision from Dr Aidan Mooney;
- Constructing a clinically grounded abdominal X-ray image–report paired dataset, addressing the scarcity of high-quality multimodal medical data;
- Conducting a comprehensive benchmark on the proposed dataset using mainstream medical report generation algorithms, validating its quality and usability;
- Developing efficient multimodal approaches for abdominal X-ray report generation, focusing on enhancing visual grounding capabilities of medical MLLMs;
- Collaborating with external clinical partners and contributing to interdisciplinary research.

Mode of Study

Awardees must be resident in Ireland and available to pursue their programme of research on a full-time basis at Maynooth University for four years.

The successful candidate's research programme will be under the general supervision of their nominated supervisor(s) who will specify study times, research times, vacation periods and other operational requirements.

Awardees will normally be based at the Maynooth University campus and may only conduct research elsewhere with the permission of their supervisor and the Head of Department.

Eligibility Criteria

Essential Criteria:

- Minimum 2.1 honours degree (or equivalent), or a relevant Master's degree in Computer Science, Engineering, or a related discipline;
- The candidate should have a strong background in deep learning, with solid foundations in computer vision;
- Proficiency in Python and PyTorch framework.

Desirable Criteria:

- Experience with multimodal large language models, particularly in vision-language tasks.

Application and Selection Process

Please include the following in your application:

- Personal statement;
- Curriculum Vitae;
- Research proposal (max. 4,000 words);
- Relevant final academic transcripts;
- Names and contact details of two referees.

English Language requirements

Applicants who are non-native speakers of the English language must provide written evidence of competency in the English language that satisfy the programme-specific requirements set out by the [Maynooth University International Office](#).

All Maynooth University Doctoral Scholarship Awards are conditional on approval for registration by the University, following a formal application on the University's application portal, MUApply.

All eligible candidates will be considered for open positions. Applicants may be shortlisted for interview and, if so, will be contacted directly by the Department. Late applications will not be considered.

Closing Date: Please apply by **5pm on 1st July 2026**. Applications may be reviewed on a rolling basis.

Please submit applications directly to: zi.ye@mu.ie.

Please title the subject of your email application as 'Doctoral Scholarship - Department of Computer Science and FSE 2026'.



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