

<b>Scholarship Project Title</b>	Large Language Models for Digital Forensic Processing
<b>Advert Reference number</b>	<b>SETU_2024_232_2</b>
<b>Supervisor(s)</b>	Dr. John Sheppard (SETU Waterford), Assoc. Prof. Mark Scanlon (UCD)
<b>Department /School/Faculty</b>	Dept. of Computing and Mathematics, School of Science
<b>Duration</b>	4 Years/48 Months
<b>Status: Full-time / part-time</b>	Full Time
<b>Funding information</b>	SETU 2024 Presidents Scholarship Programme
<b>Value of the scholarship per year for four years</b>	Stipend: €18,500 per annum Fees of €5,750 per annum (covered by scholarship) Research costs: €2,000 per annum
<b>Closing date and time</b>	<b>Wednesday 8<sup>th</sup> January 2025 at 4 pm Irish time</b>
<b>Interview date</b>	<b>To be confirmed</b>
<b>PhD commencement date</b>	<b>To be confirmed</b>

**Project Key Words:** Cybersecurity, Digital Forensics, Large Language Models

### Post summary

Applications are invited for the position of a funded PhD Scholarship in the Department of Computing and Mathematics at SETU in Ireland. The scholarship focuses on Large Language Model (LLM) in Digital Investigations. This project aims to develop an LLM framework and fine-tune related models for use across various digital forensic application areas, including digital artefact case pertinence detection, multimedia metadata extension, and network attack attribution. The research will focus on designing this framework to cater to the specific needs of digital forensic investigators, ensuring adaptability and precision in extracting and analysing digital evidence, while providing a courtroom- explainable overview of the investigative steps performed. A key component of this research will involve establishing standardised evaluation metrics and curating test sets, critical for assessing the accuracy and reliability of the tailored digital forensic LLM(s). The project will also explore the effectiveness of the digital forensic LLM framework in empowering non-technical stakeholders, such as attorneys, judges, and detectives, enabling them to interact with and understand digital evidence in a secure and reproducible manner. This research aims to bridge the gap between complex digital evidence and its interpretation in legal and investigative contexts.

### Qualifications

#### Essential

- Honours Degree (minimum 2:1) or equivalent in computer science, maths, engineering or similar technical discipline.

### **Desirable**

- Master's degree in Computer Science/Digital Forensics (or related).

### **Knowledge & Experience**

#### **Essential**

- General knowledge of Computer Science.
- Strong programming ability.
- Clear understanding of the commitment requirements for PhD research.

#### **Desirable**

- Experience of Cybersecurity.
- Experience of Digital Forensics.
- Experience of Artificial Intelligence.
- Experience of L<sup>A</sup>T<sub>E</sub>X.
- Research experience.
- Existing academic publication record.

### **Skills & Competencies**

#### **Essential**

- Applicants whose first language is not English must demonstrate on application that they meet [SETU's English language requirements](#) and provide all necessary documentation. See Page 7 of the Code of Practice
- In order to be **shortlisted for interview**, you must meet the SETU English speaking requirements so please provide evidence in your application.

#### **Desirable**

- Excellent written and verbal communication.
- Public Speaking.
- Project Management.
- Critical Thinking.
- Ability to collaborate and work as part of a team.

### **Further information**

For any informal queries, please contact Dr. John Sheppard on email [john.sheppard@setu.ie](mailto:john.sheppard@setu.ie).

For queries relating to the application and admission process, please contact the Postgraduate Admissions Office [researchadmissions@setu.ie](mailto:researchadmissions@setu.ie) or telephone +353 (0)51 302883.

For queries relating to the funding programme, please email [scholarships2024@setu.ie](mailto:scholarships2024@setu.ie)

University Website <https://www.setu.ie/>

### **Application procedure**

Download the Research PhD/MSc Application Form from the SETU website and return the completed application to [researchadmissions@setu.ie](mailto:researchadmissions@setu.ie) quoting **SETU\_2024\_232\_2** in the email subject line.

**Please note that paper submissions will not be accepted.**

**The University may decide to interview only those applicants who appear from the information they provided, to be the most suitable in terms of experience, qualifications and other requirements of the post.**

**The University will short-list and interview those applicants who provide the most suitable information in terms of experience, qualifications and other requirements relevant to the scholarship.**

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