

MESO project

The full-stack developer is required to contribute to a new commercialisation project called MESO, led by Prof. Owen Conlan. This project leverages Generative AI (LLM-based) technologies to assist educators in creating detailed, coherent, and engaging lesson plans that align with educational standards. User interactions include selecting learning outcomes, generating key learning points, and producing scaffolded lesson plans through an intuitive interface.

The Full-stack developer will be responsible for the technology stack required to deliver this innovation, including backend infrastructure, data management, APIs and front-end development. This will involve working with a cross-functional team of AI researchers, teachers, educators and designers, requiring consideration of immediate and longer-term goals of the innovation and implementing the required technical and architectural runway for each stage of development. Working in iterations and within an Agile framework to ensure continuous delivery of improvements and features.

Context

The position will be based in the ADAPT Science Foundation Ireland (SFI) Research Centre, hosted in the School of Computer Science & Statistics, Trinity College Dublin. ADAPT is the world-leading SFI Research Centre for AI-driven digital content technology and brings leading academics, researchers and industry partners together to deliver excellent science, engage the public, develop novel solutions for business across all sectors and enhance Ireland's international reputation. The ADAPT Centre is hosted and coordinated in the School of Computer Science and Statistics, TCD.

The School of Computer Science and Statistics is ranked #1 in Ireland (QS Rankings) and is a proud recipient of a Bronze Athena Swan award, attained in 2021. As part of the school's ongoing actions concerning equality, diversity, and inclusion, it welcomes all applications that meet the criteria below, particularly those from under-represented groups. The School offers a collegiate and supportive environment to all its staff and works to ensure that all its staff and students can perform at their best while putting in those steps that facilitate a healthy work/life balance.

Main Responsibilities

As part of the overall project, this Full Stack developer will work on the following tasks:

1. Full-stack Development:

- Develop and maintain both front-end and back-end components of the platform.
- Implement the backend infrastructure for data management and API development.

- Ensure the smooth operation of the AI-powered planning tools and associated user interfaces.

2. Collaboration with Cross-functional Teams:

- Work closely with AI researchers, teachers, educators, and designers to integrate their insights into the development process.
- Understand and address the educational and user requirements to enhance platform usability and functionality.

3. Generative AI Integration:

- Contribute to developing and integrating the Generative AI (LLM-based) models and agents.
- Optimize AI algorithms for performance and scalability within the application.

4. Data Management & Anonymisation:

- Develop and manage scalable, secure, and efficient databases to support the project's data needs, ensuring reliable storage and retrieval of information.
- Maintain data accuracy, privacy, and compliance with relevant standards and regulations, such as GDPR or FERPA, as applicable to educational data.
- Create and manage data flow between systems, enabling seamless integration with AI models and front-end applications.

5. Agile & Iterative Development:

- Use agile methodologies to ensure iterative progress and continuous feature improvements.
- Manage development sprints and deliver prototypes regularly to align with short-term goals and long-term vision.

6. System Architecture Planning:

- Define and implement the technical and architectural requirements for project scalability and innovation.
- Balance the immediate needs of the project's goals, trials and validation with the long-term vision for the platform's evolution.

Administrative

As a Full-Stack developer, the successful candidate will occasionally be required to engage in administrative tasks to support the overall activity of the PI and Commercial Lead. This may include drafting sections of reports for funding bodies, organising a

programme of suitably themed group meetings and seminars, contributing to research funding proposals, drafting ethics applications, and other such tasks as they arise.

Person Requirements

We are looking for an experienced Full-Stack developer capable of working with a multidisciplinary team to deliver the technology stack and architecture to deliver MESO. Candidates with an interest in AI who are working with LLMs and/or web interfaces are particularly encouraged to apply.

Qualifications

- A primary degree in computer science or similar and industrial experience.

Knowledge & Experience (Essential & Desirable)

Essential:

- A minimum of 5 years experience in a software developer role
- Experienced in delivering production-ready software
- Experienced with technologies including ReactJS, HTML, CSS, JavaScript, RestAPI, MySQL and Amazon AWS
- Experienced in test-driven development
- Continuous delivery and cloud deployment experience

Desirable:

AI/ML Knowledge: Familiarity with AI, particularly in integrating or working with LLMs and generative models.

Skills

Essential:

- Front-end development: strong experience with frameworks like React, Vue, or Angular to build intuitive user interfaces.
- Back-end development: proficiency in backend frameworks and experience designing RESTful APIs.
- Database management: experience in database design and management (SQL and NoSQL databases), ensuring data security and scalability.
- Cloud services: experience with cloud infrastructure (AWS, GCP, Azure) for hosting applications, managing data, and deploying services.
- Ability to work effectively in a cross-disciplinary team with AI researchers, teachers, educators, and designers.
- Strong communication skills to discuss technical aspects with non-technical stakeholders and users.

- Experience working in Agile environments, contributing to sprint planning, and working in iterations to deliver continuous product improvements.

Desirable

- Knowledge of GDPR and data privacy regulations.
- Experience implementing security measures to protect anonymised user data and safeguard the data dashboard.
- Experience developing solutions that adhere to accessibility standards and requirements, including support for assistive technologies such as screen readers.

Benefits

- Competitive salary and equity
- High-end computer and peripherals
- Dedicated desk in shared office space, with generous social spaces
- A creative and enabling environment with impactful research
- Pension and social insurance (PRSI) included
- Trinity Day Nursery
- Travel Pass Scheme
- Bike to Work Scheme
- Employee Assistance Programme
- Sports Facilities
- 22 days of Annual Leave
- Paid Sick Leave
- Training & Development
- Staff Discounts locally

Application Procedure

Applicants should provide the following information when applying:

1. A motivation statement outlining their interest and suitability for the position.
2. A comprehensive curriculum vitae
3. The names and contact details (e-mail) of three referees.

The deadline for applications is 12:00 noon on 15th January 2025

Applications should be sent to Chris Byrne - cbyrne19@tcd.ie. Please include the job title in the subject line.

Further Information

Informal enquiries about this post should be made to Dipto Barman - dbarman@tcd.ie.

Note:

Candidates who do not address the application requirements above will not be considered for interview.