StudentShapers Recruitment: Calling all undergraduates

(Hybrid Artificial Intelligence enriching academic feedback)

Bursary: 3 positions *x* 8 weeks Full-Time over the summer (starting date: 01st of July, 2024)

Who should apply: Undergraduate students from across College, with advanced knowledge/skills in computing, and keen on exploring new routes in A.I.-driven applications

Campus/Location: South Kensington (option for remote / online collaboration)

Project details:

Timeliness and constructiveness are essential when providing feedback to students, both for summative and formative assessment. Equally important is analysing, in a timely and efficient manner, free-text comments from evaluation questionnaires submitted by students. With the booming of A.I. tools in almost all subject areas, Teaching & Learning can benefit from AI-driven insights that help tailor learning experiences to individual student profiles, improving outcomes and satisfaction. To this end, the specific project is formed of three sub-projects (one sub-project per interested student):

a) Analysis of graphs/plots submitted as a deliverable for assessment.

b) Sentiment analysis of feedback provided by students.

c) Utilisation of speech-to-text and text-to-speech software for oral assessments/presentations.

For (a): Without loss of generality, text is easier to handle, even for automated feedback, whereas a graph/plot is not because it is normally submitted as an image embedded in a report. The objective of this sub-project is two-fold: firstly, to investigate alternative forms of submission (e.g., Matlab .mat files or similar), where all the information is provided as an ASCII file and, hence, is manageable and checkable. Secondly, to develop an application where the assessor can define criteria for the correctness of a graph/plot, and timely and constructive feedback will be provided for any associated graph/plot submitted.

For (b): Almost any survey questionnaire (e.g., Module Evaluation Questionnaires (MEQs), Course Evaluation Questionnaires (CEQs), National Student Survey (NSS), in-house surveys organized and run by staff and/or Course Representatives) includes at least one free-text question related to satisfaction, comments, or suggestions. The objective of this sub-project is to develop an A.I. tool for sentiment analysis to efficiently handle large volumes of responses and swiftly and safely provide useful insight via different metrics/merit functions.

For (c): The main challenge in an oral assessment is to swiftly understand the question and provide a correct answer within a specific time limit. Similarly, oral presentations require delivering a presentation within a given time limit, following an acceptable pace. In both cases, practice is normally based on a trial-and-error approach. The objective of this sub-project is to develop an A.I.-driven application to simulate an oral examination or presentation, where the user provides input in the form of speech. The application will convert this input to text, check its correctness against reference information, and finally provide feedback in the form of speech. For simulating an oral examination, an A.I.-driven Question Bank will be developed to include model answers. For simulating a presentation, analytics with regards to pace (i.e., number of words per minute), tone, pitch, use of inflection and emphasis, time invested per slide, etc., will be provided, along with suggestions on how to improve overall performance. Commercially available speech-to-text and text-to-speech software will be used, and the option of selecting an avatar with specific characteristics (e.g., attire, age, etc.) as the mediator to provide feedback will also be explored. Noted, this sub-project has direct added value for users with impaired vision.

It is emphasised that the skills developed during the project are transferable. For example, for (a) and (c) above, it is suggested that an application is developed using a contemporary programming language (e.g., Python), along with associated libraries and LLM. For (b) above, it is suggested that industry-standard No-Code/Low-Code software is used, such as RapidMiner or Dataiku, which include the latest data analysis, classification, and decision-making techniques (e.g., Decision Trees, Random Forest, etc.), applicable in an extremely wide range of contexts across numerous subject areas.

This project, and the three sub-projects it consists of, is for students interested in developing innovative tools in Teaching and Learning, while acquiring modern skills transferable to any other field.

IMPORTANT NOTES: In your application, please specify the sub-project you are interested in. If you are applying for more than one sub-project, indicate the order of your preferences. While you may apply for all sub-projects, no student will be assigned to more than one.

How to apply:

Applications (300-500 words) should be made via the 'Student Expression of Interest' form on the StudentShapers website (here) or accessed using the above QR code. This will then be distributed directly to the appropriate staff partner.

Deadline: 09th of June, 2024

IMPORTANT NOTE: To ensure that the first bursary instalment will be paid in July, all paperwork must be finalised and submitted by 14Jun2024. Otherwise, the earliest this instalment will be paid is 07Aug2024.

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