From: Langara | Applied Research Center
To: Hazra Imran
Cc: Applied Research
Subject: Thank you for submitting your ARC Final Report
Date: Tuesday, July 23, 2024 1:52:57 PM

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Thank you for submitting

ARC Final Report

Our team may reach out to you with follow-up requests for clarification regarding your submission.

Review your submission responses below:

Researcher First Name: Hazra

Researcher Last Name: Imran

Department: Computer Science

Other Department:

Project Title: AI-Enhanced Personalization for Engaging Gamified Learning

Start semester: 5/1/2024

End Semester: 7/19/2024

Introduction - Please introduce yourself and include pertinent background information as it relates to your project's research area. I am an instructor in the

Computer Science department with over 18 years of teaching and research experience, focusing on the field of education with an emphasis on AI and students' learning personalization. My research primarily revolves around applying advanced AI technologies to enhance educational experiences by tailoring them to individual student needs. This aligns with my current project, which aims to personalize gamified education by using AI to adapt to students' personality traits, specifically through the development and validation of models fine-tuned to the Big Five Personality Traits.

Please discuss your educational background and your work experience as it relates to this project. If possible, include a quote that helps define your interest in the project. I have completed a Ph.D. in Information Retrieval (IR) and a postdoctoral fellowship focused on Advanced Adaptivity and Personalization in Learning Systems through Collaborative Recommendations. I have published numerous papers in journals and conferences, including one in a journal with an impact factor of 4. This project reflects my passion for using AI to enhance educational experiences, aligning with my belief that "education should adapt to the learner, not the other way around."

Please summarize your project in plain language that others not in your field could understand. My project uses advanced AI to create personalized and engaging educational experiences by aligning them with students' unique personality traits. We aim to develop models fine-tuned to the Big Five Personality Traits, which will help tailor learning experiences for each student. The goal is to build a system that adapts educational content to better match individual personalities, making learning more effective and enjoyable.

Identify the project goals and objectives. Explain how the results may be used to solve a problem or inform further research in the field. Project Goals and Objectives: 1. existing research on AI in education and personalization, particularly focusing on using personality traits in learning systems. 2. Create an initial prototype for the Big Five Personality Traits. 3. Design a framework for adapting educational content to align with individual personalities. The results from the literature review and prototype will address the challenge of creating personalized educational experiences by laying the groundwork for a system that adapts to students' unique personality traits. While we have not yet built the full system, the prototype will help validate the concept and inform further development.

Briefly explain the steps taken (methods used) to conduct the research, and describe the key findings. Begin building the comprehensive system. I might apply for next round of ARC.

Who was involved in this project (eg. faculty, students, community partners)? How did their involvement contribute to the project's success? Were there any challenges to overcome? I led the project, guiding the overall direction and ensuring alignment with research objectives. Two RAs were involved; however, one did not contribute significantly, leading to a reallocation of tasks. Rooben successfully handled the assigned tasks, including the literature review and prototype development, which were crucial for the project's progress and success. The main challenge was ensuring the assigned work was completed within the available RA hours. There was a lot to explore, and more RA hours could have been beneficial to cover all aspects of the project.

Please share any personal stories that made this research experience memorable/valuable.
Exploring the potential of large language models (LLMs) was an eye-opening experience. Seeing how these models could be fine-tuned to reflect the degrees of different personality traits was fascinating and confirmed the vast potential of AI in education. This exploration created many creative ideas about how LLMs can be used.

What are the next steps for this project and for you as a researcher?
1. Literature Review 2. Prototype Development Key Findings 1. Personalized education based on personality traits is effective for improving engagement. 2. The prototype validated that AI models can be tailored to individual traits, enhancing learning experiences.

Please upload any images that will help to showcase your project.

By submitting, I consent to uploading my ARC Fund final report to the Langara Institutional Repository (The LaIR). True

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