RESEARCH REPORT NO. 1
Written on Sept. 15, 2025

PROJECT OVERVIEW

This report details the research progress for the project titled "Teaching to Understand, Understanding to Teach: Retrieval Augmented Generation for Requirements Traceability." The research was conducted for the Jet Propulsion Laboratory ("JPL"), California Institute of Technology ("Caltech"), under the sponsorship of the National Aeronautics and Space Administration ("NASA"). Continuation of this work is currently underway at Dominican University. This document constitutes Research Report No. 1, dated September 15, 2025.

ATTEMPTING TO ACQUIRE HIGH-PERFORMANCE COMPUTING RESOURCES

The transition from extending the Controlled Unclassified Information (CUI) research project into an open-source project began in early September. The original work made use of High-Performance Computing (HPC) resources at the Jet Propulsion Laboratory (JPL), indicating computational constraints upon resuming research at Dominican University, where such resources are not available. Initial efforts began by submitting a funding proposal to our institution in search of financial resources to purchase a small HPC for the institution. The proposal highlighted the proof-of-concept already developed at JPL, demonstrating a need for an HPC environment to continue the project's momentum.

Institutional talks went onward, exploring possible options while also highlighting issues associated with the integration of an HPC system. During this process, an opportunity arose from Google to fund our project's needs. A Google spokesperson, a member of our team, presented us with the opportunity, and a proposal was submitted to the pool. Our proposal was not selected from the pool of competitive applicants, therefore prompting us to explore alternative funding options.

The group is preparing a proposal to the National Science Foundation (NSF) Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS)[ACC1] program in search of HPC resources to support our research efforts. Obtaining these computational resources would allow us to continue our progress and advance our understanding of how Artificial Intelligence (AI) can support mission control systems at JPL.

REFERENCES

[ACC1] ACCESS-CI. Advanced Cyberinfrastructure Coordination Ecosystem: Services & Support (ACCESS). Website: https://allocations.access-ci.org/resources, 2025.