### DS-GA 1016 Computational Cognitive Modeling

## Final Project Proposal

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**Objective**

Our project aims to explore the intersection of computational models and cognitive processes by comparing Automated Essay Scoring (AES) systems against human evaluations of English essays. We will be using state-of-the-art NLP models like BERT and GPT3.5 to train and evaluate lexical and grammatical structures and score essays based on various aspects. The scores generated by NLP models will be directly compared to those given by human educators to assess the consistency and difference between machine and human evaluation in education settings.

**Data**

We will employ a dataset provided by Vanderbilt and The Learning Agency Lab from [Kaggle](https://www.kaggle.com/competitions/feedback-prize-english-language-learning/data). It includes 3911 essays written by 8th–12th grade English language learners and their scores on 6 measures: cohesion, syntax, vocabulary, phraseology, grammar, and conventions.

**Significance**

By analyzing the differences and correlations between human and machine scores, we aim to uncover how computational models can emulate or diverge from human cognitive patterns in language assessment. This comparison will not only highlight the potential and limitations of AES in understanding complex human judgments but also contribute to refining these systems to better align with human cognitive processes.