

Automated Assessment of Written Chart Notes: Generating Reliable, Timely, and Useful Feedback

Scoring patient notes (PNs) after standardized patient (SP) encounters is a time-consuming process, requiring significant faculty effort and affording only limited and delayed learner feedback. Improving faculty efficiency and creating a learner feedback mechanism presents the perfect opportunity to automate the scoring process using natural language processing (NLP).

Our team with expertise in natural language processing (NLP), simulation, and assessment will develop, implement and evaluate new ways to extend the capabilities of ASAG systems using advances in NLP and machine learning (ML) to rapidly and accurately assess learners' responses in the PN. In addition to its assessment value, phrase-level ASAG represents a rich "deliberate practice with feedback" opportunity, which is lost in the current grading method.

The ASAG system will provide feedback to faculty and learners at the case section level (e.g., history score, differential diagnosis score) and case content domain area (e.g., cardiology, dermatology) for summative assessment of learning or phrase-level feedback at the item level (e.g., asked about chest pain quality, noted peritoneal signs) during assessment for learning.

The system will use a human-in-the-loop (HITL) approach by seeking human input when the ASAG is below a threshold confidence level. This creates transparency of the system and uses human judgment to improve performance, allowing for faculty checks of the ASAG, thus leading to a learning ASAG system. By rapidly determining those who have clearly passed a case, the system will allow faculty to focus human oversight efforts on learners at the margin of passing.