NLP for Content Assessment of Student Essays

Description: This project addresses automated scoring of the content of students’ reading comprehension essays, based on a wisdom-of-the-crowd model. In past work, we applied a manual annotation procedure that was developed to evaluate content of automated summaries (the Pyramid Method). The pyramid content coverage and content quality scores correlate well with manual assessment scores assigned by psychologists of education. Two methods to automate the pyramid method will be compared and improved. For the first method (Passonneau et al., 2013), a model will be created using manual annotation, and we will investigate methods to improve the recall of the automated scoring of new essays against the model without loss of precision. For the second method (Yang et al., 2016), we will compare automatic creation of the model against the manually created model; the two sets of automatically generated scores; ways to improve the approach.

Qualifications: Exposure to NLP; strong python programming skills; familiarity with applied semantics as in databases, ontologies or the semantic web; excellent time management and commitment to project.

Contact: Becky Passonneau (becky@ccls.columbia.edu). Send me your CV, list of courses taken at Columbia, names of people who can provide a recommendation.

References:

Yang, Qian; Passonneau, Rebecca J.; de Melo, Gerard. To appear. PEAK: Pyramid Evaluation via Automated Knowledge Extraction. Proceedings of the Thirtieth AAAI Conference on Artificial Intelligence, February 2-17, 2016, Phoenix, AZ.