Contribution ID: **51**   Type: **Oral presentation**

Context dependence of machine-learning models for the analysis of argumentation in undergraduate lab reports

Monday 3 July 2023 17:00 (20 minutes)

Lab reports form an important part of learning experimental physics in undergraduate courses. Advances in natural language processing give us new tools that allow for the large-scale qualitative analysis of lab reports to understand how students demonstrate their skills and knowledge. Hence, we compare natural language processing techniques to understand whether it is possible to reliably extract information about student argumentation from lab reports on two different spectroscopy experiments. We find that the transformer model BERT results in the highest accuracy of $84 \pm 5\%$ and is the only model to show improved accuracy when analysing both experiments simultaneously.

How would you like to present your contribution?

Live in Košice (time slot to be allotted based on the programme)

Target education level (primary)

University education

Target education level (secondary, optional)

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