# GCA Analyzer: A Python Package for Group Communication Analysis

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## Summary

Group communication analysis is crucial for understanding social dynamics, learning behaviors, and communication patterns in various settings, particularly in educational contexts. The GCA Analyzer is a Python package that implements a comprehensive set of metrics and methods for analyzing group communications. This tool provides quantitative measures for participation patterns, interaction dynamics, content novelty, and communication density, and so on. Making it especially valuable for researchers in education, social psychology, and communication studies.

The GCA Analyzer builds upon foundational work in group cognition analysis and computational approaches to group communication (Dowell et al., 2019). These works provide essential frameworks for understanding how participants interact and contribute in group discussions. There is a example of GCA Analyzer in the paper (Wang & Xiao, 2025), which used four dimensions features to automateed recognition of group colabrative role… [TODO]

## Statement of Need

The analysis of group communications is crucial in various fields, particularly in educational research, organizational behavior studies, and online learning environments. While several tools exist for communication analysis, there is a significant gap in tools that can effectively handle multilingual text and provide comprehensive interaction metrics. Existing tools like … [TODO]

## References

Dowell, N. M. M., Nixon, T. M., & Graesser, A. C. (2019). Group communication analysis: A computational linguistics approach for detecting sociocognitive roles in multiparty interactions. *Behavior Research Methods*, *51*(3), 1007–1041. https://doi.org/10.3758/s13428-018-1102-z

Wang, C., & Xiao, J. (2025). A role recognition model based on students' social-behavioural–cognitive-emotional features during collaborative learning. *Interactive Learning Environments*, *0*(0), 1–20. https://doi.org/10.1080/10494820.2024.2442706