Educational Data Mining for Decision Making

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Educational Data Mining (EDM) is concerned with exploring large-scale educational data using computational and statistical methods in order to gain a better understanding of the educational process. EDM can be used to improve decision making across all aspects of the educational process, including but not limited to admissions; planning; and assessment and evaluation. EDM can also be applied to student data, course data, and instructor data. There are also substantial opportunities when student learning is done online, since in such cases a wealth of low-level data is readily available.

While the education domain has utilized data mining technology for some time, it still lags other fields, such as business, in the use of such technology. The purpose of this minitrack is to bring together EDM researchers and practitioners from academia and industry to discuss the latest advances in the field that support data-driven decision making. Descriptions of relevant deployed applications are especially encouraged, as is research related to large language models (e.g., ChatGPT) for education that relates to decision making. Note that topics that cover learning analytics, which is a major component of EDM but do not facilitate decision making, are not the focus of this minitrack.

Topics of interest include but are not limited to:

- Tools and decision support systems for education
- Admissions decision-making
- Enrollment projections
- Data visualization tools and methods for decision support
- Design, deployment, and evaluation of human-AI hybrid systems
- Course and program evaluation
- Personalized course and major recommendations
- Algorithms for discovering relationships, associations, and prerequisite structures between course sequences and learning resources
- Prediction of student performance (grades, completion rates, retention, etc.)
- Machine learning and statistical methods
- Impact of psychological and non-academic factors on student performance
- Student cognitive and behavioral modeling and its association with academic achievements
- Ethics and AI in Education
- Detection of biases in admissions or other aspects of the educational process and strategies to address and minimize such biases.
- Equity, Transparency, and Inclusion in Education

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