ISSMGE TC309-304 Student Contest on Machine Learning Algorithm for Prediction of the compression index

(August 24-27 2025, ISGSR 2025, Oslo)

Question:

Please submit a brief proposal report for a machine learning algorithm capable of predicting the compression index Cc based on the provided data. We will notify the shortlisted participants based on the submission of the brief proposal report. A total of 5 groups (tentatively) will be shortlisted. Those who are shortlisted are required to prepare presentation slides of 25 minutes (20 mins presentation + 5 mins Q&A) for the proposal. The presenters are required to register for the conference in order to participate in this competition.

The brief proposal shall include the following key elements:

a) INTRODUCTION:

Provide a comprehensive introduction outlining the rationale and scope of the proposed machine learning approach for predicting the compression index.

b) LITERATURE REVIEW:

Conduct a thorough literature review, summarizing relevant studies and advancements in compression index prediction methods to establish a foundation for the proposed algorithm.

c) DATA INTERPRETATION (INCLUDING OUTLIER DETECTION):

Detail the methods employed for data interpretation, with a specific focus on outlier detection. Utilize statistical analysis, probability assessment, machine learning, or other pertinent techniques to identify and address outliers within the dataset and the cleaning process.

d) PROPOSED MACHINE LEARNING ALGORITHM:

Present the proposed machine learning algorithms for compression index prediction to highlight the strengths and weaknesses of each algorithm under consideration.

e) ADDITIONAL INPUT AND OUTPUT DATA FROM EXTERNAL SOURCES (IF ANY):

Incorporate supplementary data from external sources to enhance the robustness and validity of the proposed machine learning algorithms. This additional data will serve as a valuable testbed for evaluating algorithm performance.

f) LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDY:

Discuss the limitations inherent in the proposed machine learning model and propose avenues for future research to address these constraints, ensuring a more refined and comprehensive approach.

g) MACHINE LEARNING DEPLOYMENT:

Outline a detailed plan for deploying the machine learning model, emphasizing the development of a user-friendly interface to facilitate seamless input of relevant data for end-users. Consider the practicality of the model for industry use.

h) CONCLUSION:

Summarize the main findings, implications, and overall significance of the proposed machine learning approach for predicting compression index, offering a comprehensive conclusion to the proposal.

Other information

The participants in the TC309-304 Student Contest session are required to:

a) Submit a complete brief proposal/paper in English with a maximum of 10 pages. Academic staff, such as professors, cannot be included as co-authors; however, their contributions can be acknowledged.
b) The competition requires participants to submit the code used for the Machine Learning analysis or any software employed for analyzing the data as part of the submission.
c) Each university is allowed to have maximum of four persons and minimum of one person in one group
d) Shortlisted participants are required to deliver the findings in a presentation during the conference session, consisting of a 20-minute presentation followed by a 5-minute question and answer session.

A TC309 and TC304 committee will review the proposals and presentations and select the winner of the ISSMGE TC309-TC304 Student Contest Award. Certificates will be given to the winner during the conference.

Important dates:

Registration opens: 15th May 2024

Registration closes: 30th July 2024

Timeline:

- 1st Jan 2025: Submission of brief proposal
- 1st Feb 2025: Notification sent to shortlisted participants
- 1st June 2025: Submission of presentation slides from shortlisted participants
- August 24-27 2025: Student contest

REGISTRATION

University's Name:_____

Lecturer/advisor:_____ **Contact (Email&Phone):**_____

Student Name:	**Contact (Email&Phone):**
1)_____	**1)**_____
2)_____	**2)**_____
3)_____	**3)**_____
4)_____	**4)**_____