

Call for Participation: Student Data Analytics Competition

2022 IISE Annual Conference & Expo

May 21 – 24, 2022 Seattle, WA

Data Analytics & Information Systems Track

The Data Analytics Competition is an annual student competition event organized by the Data Analytics and Information Systems (DAIS) division of the Institute of Industrial and Systems Engineers. The main objective of the competition is to provide the students with the opportunity to learn, showcase and enhance their data analysis and visualization skills through working with real-world problems with real-sized data sets.

Background

High-quality data are critical for many data analytics problems. However, collecting high quality data is expensive and labor-intensive in some applications, such as computer-aided biomedical image analysis. In addition, due to the lack of annotations, the problem of limited number of samples frequently happens and small sample learning (SSL) becomes a potential important technique. To address the small sample challenge, some machine learning models have been proposed, including few-shot learning, weakly supervised learning, transfer learning, active learning, semi-supervised learning, etc. Thanks to the data support from the **University of Mississippi Medical Center (UMMC)**, this competition will focus on a brain lesion risk prediction problem. The participants are expected to develop a decision support model to predict the risk of brain lesion based on provided magnetic resonance imaging (MRI) scans.

Eligibility

- Individuals or teams of a maximum of four members.
- Student members can be undergraduate or graduate students from higher education institutes in the field of Industrial & Systems Engineering or related fields.
- Student members should be enrolled at the time of the submission of the proposal.
- At least one of the team members must be an active member of the Data Analytics and Information System (DAIS) division of IISE.
- A team must submit a notice of intent to participate in the competition.

Competition Process

Notice of Intent

A team must submit a notice of intent to participate in the competition via email to the chairs of the competition steering committee by **Friday, Jan. 21, 2022**. The notice of intent needs to include:

- The list of full names of all team members, their affiliations, and contact information (email and phone). Student team members are required to provide their expected graduation date.
- One team member identified as the main contact.

The competition chairs will share the competition challenge questions and data set through email to the main contact provided by the team on **Friday, Feb. 4, 2022**. The data set will include training and test sets. The label information will be (partially) provided for training data.

Submission of the Results

Participating teams or individuals are required to submit a file that include 1) the predicted label for test data, 2) a final report (guideline will be provided along with the competition challenge questions and data set), and 3) the source code and scripts via email to the chair of the competition steering committee by **Friday, March 25, 2022**. More details regarding the label format and final report format will be provided along with the challenge questions. The competition steering committee will evaluate the submissions, and the F1-score of each team will be ranked based on the predicted test label. A maximum of top four F1-score teams will be selected as finalists. The competition steering committee include at least one member from the data sponsor partner with domain knowledge.

Final presentation

The selected finalist teams and individuals will present the model motivation, model approach, and results at the 2022 IISE Annual Conference & Expo, **May 21 – 24, 2022 Seattle, WA**. More information on the presentation contents will be provided to the finalist teams.

Evaluation Process

Approval of the Notice of Intent

The competition steering committee will review and approve or reject the submitted notices of intent to participate based on the eligibility criteria. Approval emails will be sent together with the competition challenge questions by the chair of the committee by **Friday, Feb. 4, 2022**.

Selection of top finalist teams

The competition steering committee will select a maximum of four finalist teams. Finalist teams will be notified by email by the chair of the committee by **April 8, 2022**.

Selection of winners

The selected finalist teams will present their results in 2022 IISE Annual Conference & Expo, May 21 – 24, 2022 Seattle, WA. A blind vote cast by invited judges will decide the winner after the presentations.

Important dates/deadlines

- Notice of Intent: **January 21, 2022**
- Notice of the team approval: **February 4, 2022**
- Competition challenge questions are made available: **February 4, 2022**
- Deadline for submission of the results: **March 25, 2022**
- Notification to the finalist teams: **April 8, 2022**.
- IISE Annual Conference & Expo, **May 21 – 24, 2022**

Competition Chairs

Haifeng Wang (wang@ise.msstate.edu), Mississippi State University

Xiao Liu (xl027@uark.edu), University of Arkansas