TECHNICAL DIVISION ON DATA SCIENCE

BYLAWS
Adopted May 20, 2020

1.0 Name

The name of this group shall be the Division on "Data Science". It is identified using the acronym DS (Data Science).

2.0 Scope

"Data Science" is a technical division within SEM emphasizing the application of data analytics in the fields of structural dynamics, mechanical engineering, and associated disciplines. Unifying machine learning, deep learning, big data, statistics, and their related methods, DS provides an analytical toolset to understand and analyze actual phenomena through data. DS employs information theory, computer science, statistics, and mathematics to use data for understanding relationships and to make predictive or prescriptive models. Examples of machine learning applications of interest to DS are to provide fast-analysis engines for data processing, enable online monitoring of structures and mechanical systems, and support data-driven risk analysis and decision-making.

3.0 Purposes

The purpose of the Technical Division on "Data Science" (DS), hereafter referred to as the Technical Division, shall be to provide maximum technical benefits to its members by:

(a) Promoting the application of data analytics to the fields of structural and mechanical engineering by providing a unique multidisciplinary forum for exchanging information on analytical methods and their applications to understand and analyze actual phenomena through data.
(b) Encouraging research, technical developments, applications, and best practices in structural and mechanical engineering through machine learning, deep learning, big data, statistics, and related methods.
(c) Providing educational opportunities such as tutorials, webinars, and short-courses to promote the understanding and use of DS methods.
(d) Interacting, assisting, and cooperating with other committees, societies, associations, or organizations by serving as a focal point on the development and application of DS.
(e) Planning and coordinating, in cooperation with others, engineering activities of the Society.
4.0 Membership

Voting members of the Technical Division will be those who are interested or actively involved in DS activities. The Technical Division's mailing list will be used to invite its members to join the Technical Division's annual meeting. Those who attend the annual meeting will compose a quorum for transacting business. Members of the Technical Division will be those who attended the last annual meeting usually held during the IMAC Conference, although holding it during another SEM event is also possible, and those who request to remain on the membership list even though they were not able to attend the last meeting.

5.0 Organization and Governance

Organizational responsibilities shall be vested in the Executive Board of the Technical Division. This Board shall consist of the Officers, Past-Chair, and others as appointed by the Chair of the Technical Division. It shall be the Executive Board's responsibility to schedule, coordinate, plan, and organize activities, and to establish policies and procedures for submission to SEM for consideration.

6.0 Meetings

6.1 Regular meetings of the Technical Division shall be held at twelve-month intervals, which coincide with the annual IMAC Conference. It will be possible to hold the Technical Division's annual meetings during another SEM event as long as it occurs within the twelve-month interval. It shall be the duty of the Secretary to notify (with agenda) all members of forthcoming meetings at least one month prior to a meeting.

6.2 The agenda for regular meetings will be formulated by the Executive Board of the Technical Division.

7.0 Officers and their Duties

7.1 Chair - The Chair of the Technical Division shall also be Chair of the Executive Board and shall preside over the meetings of each body. The Chair shall be a member of the Nominating Committee, an ex-officio member of all subcommittees and represent the Technical Division to — and interface with — the national SEM. The Chair shall be a member of the SEM Technical Divisions Council.

7.2 Vice-Chair - The Vice-Chair shall discharge the duties of the Chair in his/her absence or disability and undertake such other duties as may be requested of him by the Chair. The Vice-Chair will belong to the Executive Board.

7.3 Secretary - The Secretary shall be responsible for preparing and distributing meeting notices, ballots and other correspondence of general interest to the Division. The Secretary will also take minutes during the Technical Division meetings and will prepare and distribute copies of such minutes to each of the Technical Division members. The Secretary will belong to the Executive Board. The secretary will maintain the membership list obtained as specified under the membership section. When sending out the annual meeting announcement, the secretary will give opportunity for members to declare their intent to continue membership status for the current year if they are not able to attend the annual meeting. Members will be deactivated if they do not come to the annual meeting or declare their intent to continue membership.

7.4 Past-Chair - The Past-Chair will act primarily as an advisor to the incumbent Chair and shall be a member of the Executive Board. The Past-Chair shall also act as Chair of the Nominating Committee, conduct the election, count the votes and make the results known to the Technical Division.
7.5 Historian - The Historian will coordinate work to categorize and archive DS papers written for SEM conferences and journals in a data base that will be available to ease the referencing of such papers. The Historian will organize procedures for the implementation and organization of the Technical Division's awards, such as best-paper awards presented at SEM conferences.

8.0 Election of Officers

8.1 The Chair and Past-Chair shall constitute a Nominating Committee for the elective officers of the Executive Board. Nominations for elective officers can also be made from the floor or by letter and can only be made by voting members or designated alternate.

8.2 Voting will be by secret ballot if there are multiple nominees and by acclamation when only one nominee exists for a given office.

8.3 The nominee for each office receiving a simple majority of votes cast shall be elected. Ties shall be resolved by a run-off election.

8.4 The election of officers shall normally be held during the IMAC Conference of every third year, with elected officials taking office at the following meeting. The terms of office shall be three years.

8.5 Vacancies - Should a vacancy occur on the Executive Board, the Chair shall appoint a replacement to fill the vacancy subject to approval of the remaining Board members. In the event the Chair's seat becomes vacant, the Vice-Chair will assume the position and make appropriate appointments.

9.0 Subdivisions

The Executive Board may establish subdivisions or subcommittees. These subdivisions will concern themselves with special areas of interest to the Technical Division. Subcommittee reports shall be presented at each Technical Division meeting until the subcommittee is dissolved. The chair of each subdivision shall be appointed by the Chair of the Technical Division.

10.0 Publications

10.1 A copy of the minutes of each Technical Division meeting shall be sent to each member.

10.2 Proceedings and other publications shall be prepared and distributed as deemed appropriate.

11.0 Records

Permanent past and current records such as copies of meeting notices, lists of meeting attendees, minutes, correspondence, membership list, publications, etc., shall be maintained by the Secretary. Such information should also be sent to the national SEM for filing.

12.0 Finances

There shall be no dues or financial obligations of the members other than their personal expenses incurred in attending meetings.
13.0 Amendments
These Bylaws may be amended at any time using the following procedures:
13.1 Amendments can be proposed by any voting member. Proposed amendments shall be submitted in writing to the Executive Board no later than eight weeks before a meeting of the Technical Division.
13.2 Proposed amendments shall be distributed by the Secretary to Technical Division members for comment, after which the proposals will be considered in open discussion during the next regular Technical Division meeting.
13.3 Following discussion, the amendment shall be voted upon. A two-thirds majority of all votes cast by members present and eligible to vote shall be required for adoption of the proposed amendment.

14.0 Procedures
All instances not covered by these Bylaws shall be governed by Roberts’ Rules of Order.