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Special Issue on Analysis and Design of Sociotechnical Systems

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Special Issue on Analysis and Design of Sociotechnical Systems

Modern engineered systems are increasingly connected, with complex interactions among social and technical aspects, both during the design process and after fielding. For example, autonomous vehicles; smart cities; sharing economy platforms; and more broadly, emerging systems enabled by AI and the Internet of Things (IoT), cross traditional cyber and physical, machine and human boundaries, with their performance largely determined by how they interact with society.

While traditional engineering design has focused on designing an optimal technical artifact, there is increasing recognition that social and organizational aspects of how designers collaborate and create, and how systems co-evolve with the human and built environments through use, are equally important drivers of value. Additionally, the rise of new sources of data and increased availability thereof creates many opportunities to extend design research into the sociotechnical realm. For example, collecting and learning from new sources of data, understanding these complex new phenomena, incorporating human individual and group behavior into design, and developing models and tools to govern them. Responding to that need, this Special Issue brings together fundamental scientific contributions across those areas.

Topic Areas

- Fundamental theories of sociotechnical system design
- Integrating human behavior (individual and group) into the design process
- Applications of social and economic networks in engineering design
- Risk and uncertainties in sociotechnical systems
- Empirical methods and data collection to study complex sociotechnical system design
- Emerging sociotechnical systems in transportation, sharing economy, manufacturing and human-AI systems
- Quantifying non-functional and human-centric performance measures (resilience, evolvability, flexibility, etc.)
- Co-evolution of social and technical systems
- Modeling the interaction of systems and organization architecture
- Leveraging distributed innovation
- Design and governance of multi-stakeholder systems
- Education and industrial applications of sociotechnical system design

Papers that directly address design issues of sociotechnical systems, modeling and analysis papers with clear design motivation and prospect will also be considered.

Publication Target Dates

Paper submission deadline: **February 1, 2020**
Initial reviews completed: **April 15, 2020**
Special Issue publication date: **November 2020**

Papers received after February 1, 2020 may still be considered for the Special Issue, if time and space permits.

Submission Instructions

Papers should be submitted electronically to the journal at journaltool.asme.org. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the **Journal of Mechanical Design** and then in the Special issue dropdown menu choose **Analysis and Design of Sociotechnical Systems**. Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.

Special Issue Guest Editors

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