Rationale
Sentiment analysis is an important natural language processing (NLP) task in its own right and as part of text processing systems. It is widely used to process and understand Internet texts, which is important for both the scientific community and the business world. Its scientific importance is based on many open challenges to define and precisely capture implicit and explicit sentiment. While most works approach it as a simple categorization problem, sentiment analysis is actually a complex research problem that requires many other NLP tasks, including subjectivity detection, anaphora resolution, word sense disambiguation, sarcasm detection, and aspect extraction. Its practical importance is due to the remarkable benefits to be had from some proven commercial applications, including but not limited to user profiling, digital marketing, and financial prediction.

Sentiment analysis has advanced with progress in the construction of knowledge bases for the identification of polarity in text, e.g., SentiWordNet, SentiStrength, and SenticNet, as well as progress in statistics-based approaches that leverage sentiment expression data sets, i.e., machine learning and deep learning. Despite the expanding size of knowledge bases and data sets, and the complicating algorithms, there is a declining trend in linking sentiment analysis with theories from other disciplines. This, from a scientific perspective means considering contributions from linguistics, psychology, and cognitive science, and from a practical perspective means producing task-aware results for downstream applications.

Sentiment analysis, just like artificial intelligence (AI), is a multidisciplinary research area that requires theoretical input from its context. Therefore, the research should not only “go deep”, but also “go broad”. We envision that introducing new theories would also mitigate the interpretability problem, i.e., the problem that sentiment analysis methods become data-dependent and function in a black-box manner. Having many aspects of the same problem may help stepping forward in the path from NLP to natural language understanding. Another way to “go broad” would be the combination with other applications, e.g., social computing and recommender systems, where sentiment analysis may yield unexpected results or new insights.

This special issue focuses on bringing multidisciplinary knowledge into sentiment analysis. We expect submissions that introduce theories not usually part of the standard sentiment analysis framework, and potentially attract researchers to learn more about the relevant literature. Minor improvements, e.g., a new neural network architecture that changes performance but lacks a rationale, and applications of the same method on a different domain or dataset fall outside the scope of this special issue.
Topics of Interest
Topics of interest include, but are not limited to:
- Critical assessments of existing sentiment analysis methods
- Explainable sentiment predictions
- Sentiment of multiword expressions
- Hybrid symbolic and sub-symbolic AI for sentiment analysis
- SenticNet 6 and other hybrid knowledge bases for sentiment analysis
- Sentic LSTM and other hybrid deep nets for sentiment analysis
- Commonsense reasoning for sentiment analysis
- Semantic models for sentiment analysis
- Phrase structure grammar for sentiment analysis
- Dialog context for sentiment analysis
- Morphological hints for sentiment analysis
- Joint sentiment analysis and sarcasm/irony detection
- Sentiment analysis and language learning theory
- Sentiment analysis and its application to recommender systems
- Sentiment analysis and its application to sciento-(biblio-)metrics
- Sentiment analysis and its application to social networks
- Sentiment analysis and stress/suicide detection
- Sentiment analysis and portfolio theory
- Sentiment analysis and financial markets
- Sentiment analysis and forecasting methods

Important Dates
Paper submission: 1 March 2021
Initial review feedback: 15 May 2021
Revision: 7 June 2021
Second review feedback: 2 August 2021
Expected publication date: October 2021

Composition and Review Procedures
Paper submissions should follow the submission format and guidelines for regular papers and be submitted at https://mc.manuscriptcentral.com/tai-ieee. All papers will be peer-reviewed following IEEE TAI reviewing procedures. The Editor-in-Chief will make an initial assessment of its quality before the submission is sent out for peer review. Papers will be evaluated based on their originality, presentation, relevance and contributions, as well as their suitability to the special issue. Papers that either lack originality and/or clarity in presentation will likely be rejected by reviewers. Papers that fall outside the scope of the special issue but fall within the scope of IEEE TAI will be diverted to the normal track in IEEE TAI. Authors should select “SI: SAMRA” when they reach the “Article Type” step in the submission process. The submitted papers must propose original research that has not been published nor currently under review in other venues. Previously published conference papers should be clearly identified by the authors at the submission stage and an explanation should be provided about how such papers have been extended. Such contributions must be substantially different with at least 50% difference in writing from the research work they stem from.