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Dynamics of peoples' interests and opinions in society using sociphysics approach

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As a method of analyzing and predicting social phenomena using social media as data, we present analyses based on the mathematical model of the hit phenomenon, which is one of the established models of sociophysics. The dynamics of the number of social media posts for movies, events, and a YouTube movie are explained. This establishes that the mathematical model of the hit phenomenon can explain the spread of topics as a social phenomenon. Using this model, it can be determined whether the topic is spread beyond clusters by social dynamics; if the indirect communication is considerable, it becomes a hit. For entertainment topics, the direct communication strength, "D," indicates the satisfaction of the current interested people or supporters, whereas the indirect communication strength, "P," indicates the power to acquire a new support layer. Thus, this is effective not only for the analysis of entertainment and marketing strategy but also for burst analysis and opinion dynamics on the social media. Using the similar idea with both trust and distrust between people, we can also construct new opinion dynamics.

Biography

Akira Ishii is a professor of Applied Mathematics and Physics at the Tottori University, Japan. He is a member of the Physical Society of Japan and the chairman of the Computational Social Science Japan. He obtained a Ph.D. from Waseda University in Tokyo in 1985. After a postdoctoral fellow at the University of Tukuba in Japan and the Imperial College London, he obtained a tenured research position at Tottori University as assistant professor of Physics. He has experience to stay Fritz Haber Institute of the Max Planck Society as guest professor. He organized four international workshops on applications of big data analysis to computational social science at 2016, 2017, 2018 and 2019 in IEEE Big Data and Web Intelligence. He is an expert in the solid-state theory and the sociophysics. He presented a sociophysics theory "mathematical model for hit phenomena" and a new opinion dynamics theory.

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