

Sifeng Liu listed in the world's top 2% scientists

A team of investigators from the Stanford University, SciTech Strategies and Elsevier B.V. has released a report of the top 2% scientists globally in various fields, and over 5,000 scientists with Chinese affiliations made it to the list (Ioannidis *et al.*, 2020). The list also recognized the top gurus of fuzzy set theory and grey system theory (Science Insight, 2020).

The list of top scientists was created by the experts on the basis of standardized citation indicators like information on citations, *h*-index, co-authorship and a composite indicator. The ranking is based on a *c*-score (composite indicator for career-long impact), an indicator introduced by Professor Ioannidis and colleagues.

All of these scientists were classified into 22 scientific fields and 176 sub-fields in the report, which was prepared by John Ioannidis (Stanford University), Kevin W. Boyack (SciTech Strategies, Inc.) and Jeroen Baas (Elsevier B.V.). The database entitled "Updated science-wide author databases of standardized citation indicators" has been published in *PLOS Biology* journal on October 16 (Ioannidis *et al.*, 2020). Elsevier's Scopus data were used for analyses with data freeze as of 6 May 2020. They have created a database of over 100,000 top scientists of the world based on various standardized citation metrics, namely, information on citations, *h*-index, co-authorship and a composite metric.

Many notable scientists feature on the list. The list recognized some top gurus of uncertainty theories. Professor Lotfi A. Zadeh, the founder of Fuzzy Set Theory, ranked top position among 215,114 scholars from the "Artificial Intelligence and Image Processing Category," and got a *c*-score of 5.25590101247616. Professor Zadeh was born in 1921 in the Soviet Union. He taught at the University of California, Berkeley, and died in 2017, leaving behind a momentous legacy. He founded fuzzy mathematics and fuzzy set theory. At present, fuzzy controllers, developed on Zadeh's fuzzy set theory, have important applications in industry.

Professor Sifeng Liu, a key figure in grey system theory, is another name in the list who earned a *c*-score of 3.51052831011354 in the Artificial Intelligence and Image Processing category. Earlier, a 2019 report by *Scientometrics* journal revealed him as the world's most influential grey system theory scholar (Pan *et al.*, 2019). According to the first issue of the list of highly cited authors published by Baidu Scholar in September 2020, he was the "most highly cited" scholar in the System Science category with more than 38,000 citations and an *h*-index of 87. Currently, he has more than 34,000 citations with an *h*-index of 70+, according to Google Scholar, and is a top scholar in the Grey System category.

Professor Liu was the doctoral pupil of Professor Julong Deng, the founder of Grey System Theory, and currently serves as the chairman of the International Association of Grey Systems and Uncertainty Analysis (IAGSUA, 2021). He is also the editor-in-chief of "The Journal of Grey System" (JGS, 2021) and "Grey Systems: Theory and Application" (GSTA, 2021) and the honorary editor of the newly founded "International Journal of Grey Systems" (IJGS, 2021). He is the key driving force making grey system theory popular in the international world. In 2017, China's Ministry of Industry and Information Technology reported on its official website that Professor Liu's Chinese monograph *Grey System Theory and Its Applications* was identified by the "Annual Report of Highly Cited Chinese Books (6th edition)" as the most highly cited book in natural science general category (CNKI, 2017; MIIT, 2017). He currently teaches at Nanjing University of Aeronautics and Astronautics and serves as the Director of its Institute for Grey Systems Studies, where he trains a new generation of grey system scholars from different countries. At present, grey relational



Grey Systems: Theory and
Application
Vol. 11 No. 3, 2021
pp. 341-342
© Emerald Publishing Limited
2043-9377
DOI 10.1108/GS-06-2021-169

analysis and grey forecasting models, two core streams of Deng and Liu's grey system theory, have important applications in industry.

The complete list comprises 159,684 researchers identified through their affiliation, country, *c*-score and field-wise rank.

Despite the limitations of the quantitative metrics to comprehensively evaluate researchers' performance, for new and emerging scientific fields like grey system theory, the quantitative analysis of the heavy-hitters' performance can provide valuable information about the performance of the fields to which they belong (Prpić, 1996; Vinkler, 1995). Therefore, scholars with interest in scientometrics, in general, and in grey scientometrics, in particular, should keep abreast of the latest quantitative assessments of not only grey system theory as a scientific field but also of its key figures like Professors Deng Julong and Sifeng Liu. Since the grey system theory is an interdisciplinary field, it has faced challenges in consolidating its gains as a unique field. This phenomenon is clearly visible from the indicators mentioned above, where the achievements made by the Distinguished Professor Sifeng Liu, the most distinguished face of the field, have been identified in different categories by different evaluators. It is time to rejoice and think!

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