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Big data is the future of material science

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Abstract

The volume of data in Material Science is rapidly growing, with the data growth rate of doubling every year in many contexts. It is expected that recently announced Materials Genome program that targets the development of new computational infrastructure to accelerate materials discovery and deployment will further accelerate this trend. This talk will give a brief overview of the fundamental challenges that Big Data pose to scientific research in Material Science. The research includes a variety of data science disciplines such as statistics, machine learning, data mining, data modeling, data indexing and searching. I will describe some major concepts and approaches with more detailed examples from data text mining.

Biography

Dr. Alex V. Vasenkov is Chief Technology Officer at Multi Scale Solutions Inc. He received his Ph. D. degree in physics and mathematics from the Russian Academy of Science in 1996. He has significant experience in software development, business development, and project management. Dr. Vasenkov is a prime developer of Multi-Scale Computational Framework. His research was funded by federal agencies (NSF, DOE, and DoD) and industry (Samsung Advanced Institute of Technology, etc.). He is the co-author of a book chapter on multi-scale modeling of materials and over 30 publications in peer-reviewed journals.