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DNA sequences of multiple species of soil bacteria on variant maps

From a suffix -omics viewpoint, there are hierarchical relationships among genomics, proteomics and metabolomics. Typically 40 million bacterial cells are in a gram of soil and a million bacterial cells in a milli litre of fresh water. There are approximately 5×1030 bacteria on Earth, forming a biomass which exceeds that of all plants and animals. The DNA of most bacteria is contained in a single circular molecule called the bacterial chromosome. The chromosome, along with several proteins and RNA molecules, forms an irregularly shaped structure called the nucleoid. This sits in the cytoplasm of the bacterial cell. In this keynote, multiple species of soil bacteria are selected to measure their DNA sequences using variant construction to form variant maps to generate various statistical probability distributions under a list of controllable parameters. Under this mechanism, it is possible to generate multiple feature distributions from Fock, sub-Poissonian to Poissonian, normal distributions using multiple random resources: Quantum random sequences, DNA sequences, cryptographic sequences, ECG signal sequences,etc. under controllable phase spaces in clusters. This powerful visual and control mechanism are useful to make proper simulation and computation tools and packages in advanced metabolomics applications.

Biography

Jeffrey Zheng has completed his ME and PhD degrees from the University of Science and Technology of China in 1981 and Monash University in 1994, respectively. He has worked as a Professor at the School of Software, Yunnan University, China, since 2004. He is an IEEE Member and a Member of the Education and Popular Science Committee in Chinese Cryptographic Society. His research focuses on variant construction from logic foundation, measurements and visual distributions to key applications. He has also received numerous awards, including Scientific Creative Excellent (2007 and 2012) from the All-China Federation of Returned Overseas Chinese; 2012 Higher Levels of Overseas Scholar project in Yunnan by Yunnan Scientific Ministry and 2013 Excellent Overseas Teacher from Yunnan Education Ministry.

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