Editor's Desk

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The aphorism "prediction is difficult, especially if it is about the future", variously attributed to Niels Bohr and Mark Twain and occasionally found in Chinese fortune cookies, elicits a smile from the listener when we say it. This is because we generally think that prediction is always about what has not happened yet. What about predicting the past? It may appear to be an incongruous question. What is there to predict if it has already happened? Think again. There are many things that happened a long time ago such as the creation of the universe, evolution of life, and other deep questions. And, we do not have definitive answers to how, when, and where they happened. Such unknown things from the past are aplenty. We can hypothesize about them, understand to the extent possible, and perhaps definitively prove, or not, long after their occurrence.

Predicting the past need not be about profound matters. It can be about simple and yet practically important matters. What factors influenced an event? Or what is the likely influence of a factor on an event? For example, does smoking cause lung cancer? Does tea taste different if milk is poured into a cup containing tea powder as opposed adding tea powder to milk that is poured before that? Does a tossed coin yield more heads than tails if you slightly wet one side of the coin? Deducing such cause-and-effect relationships based on past data needs probability and statistics, which is the theme of this issue. The applications of this are many in all fields whenever or wherever there is uncertainty and the role of chance occurrence. Prof. Anil Gore's starter article describes this and orients the readers unfamiliar with this field. We are thankful to him for writing this article the purpose of which is to provide the background to the theme. The title he used is apt: Statistics is what statistics does, perhaps being wary of the insolent remark about the field: There are lies, d…d lies, and statistics. Incidentally, although attributed to Mark Twain, there does not appear to be a definitive conclusion on who said this first and thus highlighting the confounding challenges encountered in this field. Establishing a fact from the past is not easy because the data may be incorrect, corrupted, and incomplete. It is in those situations we need probability and statistics. By understanding the past, one can also predict the future and know the limits of those predictions.

It is my pleasure to thank Prof. Arni S. R. Srinivas Rao who meticulously guest-edited this issue. He started early, followed up with authors and reviewers, and got the work done well in advance. It is unprecedented in this Journal primarily because contributors are all accomplished researchers and scholars with their own busy schedules. Writing a review article may not be a priority when there are other compulsions. Therefore, as always, we are thankful to all the authors and reviewers who contributed their time to this issue.

Prediction reminds me of an intriguing piece of short fiction (What's Expected of Us? 6th July, 2005, Nature) by Ted Chiang, a renowned science fiction writer of our generation. He talks about free will and determinism by imagining a simple gadget on which we see just two things: a button and a light. The light flashes exactly one second before you press the button. If you do not press it, it does not flash. But if you wait for long and then press it suddenly, presumably to fool the device, you will notice that the light had flashed one second before you pressed it. The gadget is called the predictor. It uses, the author tells us, a circuit that has negative time delay and hence can send signals from the future. The gadget cannot be fooled. In his story, Chiang persuasively argues that the people could be thrown into a dystopic world when they realize that there is no such thing as free will because the little gadget practically demonstrates that. Thus, prediction has profound implications not only in the real world—past or future—but also in imaginary worlds. And, it is only left to us to imagine the possibilities for statistical analysis if some data are available from the future.

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