Journal of
Applied & Computational Mathematics

Senthilkumar, J Appl Computat Math 2014, 3:1
DOI: 10.4172/2168-9679.1000e136

Editorial Open Access

Applied Mathematics for Real Time Applications

Sukumar Senthilkumar*

School of Computing Science and Engineering, Vellore Institute of Technology-University, Vellore-632014, Tamil Nadu, India

It is well known that, applied mathematics is concerned with the application of mathematics in a broad range of diversified disciplines such as science, technology, business and commerce etc. Moreover, applied mathematics is a branch of mathematics that concerns itself with the application of mathematical knowledge to other various domains including numerical analysis, mathematics of engineering, linear programming, optimization and operations research, continuous modelling, mathematical biology and bioinformatics, information theory, game theory, probability and statistics, financial mathematics, actuarial science, cryptography and therefore combinatorics and even finite geometry to some extent, graph theory as employed to network analysis. In addition, applied mathematics includes important practical problems such as materials processing, design, and medical diagnosis, development of financial products, communication theory, gaming theory, network management and weather prediction. For instance, cryptography is based on algebra, signal processing is based on Fourier analysis, and important applications have arisen from topology to physics. Discrete mathematics is an indispensable tool in understanding structures and systems in computer science. Also, quantitative information is acquired, classified and processed according to mathematical models of physical phenomena with mathematical tools. The study of fundamental theory, concepts and develop tools needed to model the physical world and to tackle the complexities of modern engineering. In such situation, new algorithms are designed and developed to solve various practical problems in order to obtain accurate results. As a result, many inventions and advances in computer science have generated new frontiers for research in mathematics and other related areas.

Computational Fluid Dynamics (CFD) is considered as an indispensable analysis/design tool in an ever-increasing range of industrial applications under applied mathematics. But, practical flow problems are often so complex that a high level of ingenuity is required. Hence, CFD methods and algorithms are employed to simulate a number of phenomena for the development/refinement of mathematical and numerical models, software tools and their innovative applications in CFD which are necessary to perform constructive task. For instance, crashing waves and oceans can leverage CFD, including explosions, fireballs, and smoke effects all make use of CFD nowadays as well. Moreover, some of the physical phenomena commonly simulated in movie and video game special effects include water, fire, smoke, explosions, rigid body dynamics, and the deformation of elastic bodies. The governing equations for these processes are most often in the form of a system of partial differential equations. In near future, by employing complete efforts to fully realize the potential of applied mathematics and computation in the industry and other fields is necessary to make better. Finally, many fundamental and core areas in computer science such as computability and computational complexity are very much part of mathematics and vice versa.

***Corresponding author:** Sukumar Senthilkumar, School of Computing Science and Engineering, Vellore Institute of Technology-University, Vellore-632014, Tamil Nadu, India, Tel: 919442696168; E-mail: senthilkumar@vit.ac.in, ssenthilkumar1974@yahoo.co.in

Received January 06, 2014; **Accepted** January 07, 2014; **Published** January 10, 2014

Citation: Senthilkumar S (2014) Applied Mathematics for Real Time Applications. J Appl Computat Math 3: e136. doi:10.4172/2168-9679.1000e136