



ICCMS 2017

International Conference on Computational Modelling & Simulation

International Conference on Computational Modelling & Simulation - 2017

Final Report



*“Computational
&
Simulation
Perspectives:
Looking ahead
and Moving
Across
Boundaries”*

May 17-19, 2017

Organized by

*Faculty of
Science,
University of
Colombo*



1. Executive Summary

Title	International Conference on Computational Modeling & Simulation (ICCMS-2017)
Period & Venue	May 17-19, 2017, Sri Lanka Foundation, Colombo
Theme	Computational & Simulation Perspectives: Looking Ahead and Moving Across Boundaries
Organizer	University of Colombo Faculty of Science
Co-organizer	National Science Foundation, Sri Lanka
Partners	<ul style="list-style-type: none"> • Department of Mathematics, South Asian University, New Delhi, India • Faculty of Mathematics and Natural Sciences, Institute of Technology, Bandung, Indonesia • German Academic Exchange Service (DAAD)
Objectives	Enhance the use of computational modeling and simulation among academia, researchers and professionals as a tool for research, and develop interdisciplinary collaboration between local and foreign researchers
Resource Persons	65 (USA, Germany, Sweden, India, Pakistan, Indonesia, Japan, China, Australia, Nepal, Poland, Singapore)
Main Activities	<ul style="list-style-type: none"> • Conference on Computational Modeling & Simulation • Special Session on Modeling & Simulation in Health & Biological Modeling • Special Session on Data-Driven Modeling and Simulation • Special Session on Quantum Computation and Quantum Information • Special Session Molecular modelling in Chemistry and Biochemistry • Special Session on Urban Health, Climate and Environmental Modeling • Special Session on Mathematical Modeling and their Industrial Applications • Hands on Workshop on R for Researchers • Special Workshop on Computational Algebra
Conference Proceedings	<ul style="list-style-type: none"> • Number of papers Received– 120 • Number of accepted papers– 95 • 50% of the accepted papers were foreign papers (USA, Germany, Sweden, India, Pakistan, Indonesia, Japan, China, Australia, Nepal, Poland, Singapore, Korea)

2.0. Introduction

Computational modeling and simulation transforms physical systems into computer models that can be manipulated through software programs and reproduce dynamical behavior by way of simulating. Computational modeling and simulation have provided an unparalleled opportunity to solve major problems that are faced in the 21st century. Recent advancement in computer technology including faster computers with higher capacity and the ease of communication along with dramatic breakthroughs in algorithms have in turn led to running complex simulations in real-time which were not possible in the past. This has revolutionized the way that the scientific and engineering experiments are carried out. It has made it possible to solve time consuming complex problems that were once thought impossible to handle. It has become particularly important for research problems that are unsolvable through traditional theoretical and experimental approaches and for experiments that are risky, time consuming or expensive to be carried out in a laboratory.

Within the past two decades computational modeling and simulation has become an essential and integral part in wide range of fields including Physical Sciences, Biological Sciences, Engineering, Medical Sciences as well as Social Sciences as it provides both qualitative and quantitative insights into the operation of many phenomena. This has led to collaborative multi-disciplinary research that bridge many fields together and explore across traditional boundaries which enables better understanding of real world problems.

The International Conference on Computational Modeling & Simulation (ICCMS-2017) was organized by the Faculty of Science, University of Colombo and National Science Foundation, Sri Lanka in collaboration with the Department of Mathematics of South Asian University, Delhi, India and Faculty of Mathematics and Natural Science, Institute of Technology Bandung, Indonesia. The conference provided a platform to discuss and share knowledge on Computational Modeling and Simulation across many disciplines.

2.1. Objective

The main objective of the conference was to enhance the use of computational modeling and simulation among academia, researchers and professionals as a tool for research, and to develop interdisciplinary collaboration between local and foreign researchers.

3.0. International Conference

The three day International Conference had been a premier forum to disseminate new advances and research findings in all areas related to Computational Modeling & Simulation such as Biology, Medicine, Health, Urban Health, Climate Changes, Environment, Finance, Economics, Engineering, Mathematics, Statistics, Physics etc. The conference welcomed researchers who are interested in exploring and sharing knowledge and skills related to computational modeling & simulation. In addition, it had been a platform to initiate new international collaborations, to train early career researchers as well as postgraduate students to use computational modeling across subject boundaries.



3.2 Special Sessions /Workshops

The following special sessions had been conducted throughout the days.

Special Session on Health and Biological Modeling

The Research & Development Centre for Mathematical Modeling, Faculty of Science, University of Colombo organized a special session on Modeling and Simulation in Health and Biological Modeling in collaboration with Department of Clinical Medicine, Department of Community Medicine, Faculty of Medicine, University of Colombo and Centre for Dengue Research, Faculty of Medicine, University Sri Jayewardenepura.

The session enabled researchers from diverse fields and policymakers to share and learn about three key challenges facing Sri Lanka, the developing countries and also that have an impact globally.



Special Session on Urban Health, Climate and Environment Modeling

The Research & Development Centre for Mathematical Modeling, Faculty of Science, University of Colombo organized a special session on Modeling and Simulation in Urban Health, Climate and Environment in collaboration with Department of Clinical Medicine, Department of Community Medicine, Faculty of Medicine, University of Colombo and Department of Architecture, University of Moratuwa.

Special Session on Data-Driven Modeling and Simulation

Modern applications in Statistics pose new challenging problems and often require the development of computationally intensive statistical methods. Data-driven Modeling and simulations is central to the development of these methods and has become increasingly popular and is widely used in many areas today. Thus, ICCMS offered a special session on Data-driven Modeling and Simulation. This session brought together leading researchers in this area from around the world.

Special Session on Quantum Computation and Quantum Information

Quantum computation adopts an entirely different approach than classical computation, and its capability of implementing superfast algorithms has been proved both theoretically and experimentally. A significant number of researchers are currently involved with research on quantum computation and quantum information. Thus, the conference allocated a special session for this particular area, as there is a high possibility that quantum computation might be the computational paradigm of the future. The session provided a platform for experts and novices to meet together and share the results.

Special Session on Molecular Modeling in Chemistry and Biochemistry

Molecular modeling in chemistry and biochemistry can be divided into two major parts namely quantum mechanics and classical mechanics. Quantum mechanics can be applied to molecular systems with fewer numbers of atoms while classical mechanics can be applied to larger molecular systems. A large number of scientists all over the world use these molecular modeling methods in studying chemical and physical properties of chemistry and biochemistry. Therefore the conference allocated a special session for this area and it provided a good stage for the participants to share their knowledge in a very productive manner.

Special Session on Mathematical Modeling and their Industrial Applications

In the modern world, Mathematical Modeling concept is being used in various industries as a cost effective experimental tool. This special session provided unique platform to exchange and share knowledge and experiences of Mathematical Modeling in various industries.



Special Workshop on R

This workshop provided a hands-on experience on R for researchers. This had been targeted for those who want to handle data, who want to read the story of their data and for those who want to keep up with new generation data analytics.

It was conducted in two sessions, with a duration of 4 hours each, at the Department of Statistics University of Colombo where the following aspects had been addressed.

- Introduction to R/ R basics
- Data Management
- Descriptive Analysis
- Simulations
- Basic Data Analysis Tools
- Case Study based Sessions

Special Workshop on Computational Algebra

Computational Algebra is an important subject area and it has direct application in the field of software development and algorithm development for various real life problems.

4. Committee

Co-chairs

Prof. DUJ Sonnadara, Department of Physics, University of Colombo, Sri Lanka

Dr. SSN Perera, Department of Mathematics, University of Colombo, Sri Lanka

International Organizing Committee

Prof. DUJ Sonnadara, Department of Physics, University of Colombo, Sri Lanka

Dr. SSN Perera, Department of Mathematics, University of Colombo, Sri Lanka

Prof. MR Sooriyarachchi, Department of Statistics, University of Colombo, Sri Lanka

Prof. Samantha Weerasinghe, Department of Chemistry, University of Colombo, Sri Lanka

Dr. HHE Jayaweera, Department of Physics, University of Colombo, Sri Lanka

Prof. RK Mohanty, Dean, Faculty of Mathematics & Computer Science, South Asian University, India

Dr. Deepa Sinha, Department of Mathematics, South Asian University, India

Dr. Navnit Jha, Department of Mathematics, South Asian University, India

Dr. Yudi Soeharyadi, Faculty of Mathematics and Natural Sciences, Institute of Technology, Indonesia

5. DAAD Alumina Members' Contribution

	NAME	INSTITUTE	EMAIL	CONTRIBUTION
1	Prof. Dr. Tanka Nath Dhamala	Central Department of Mathematics, Tribhuvan University, NEPAL	amb.dhamala@daadindia.org	Resource person and presenter in the paper ICCMS98 Chairperson of the session B7

2	Dr. Samir Shrestha	Department of Natural Science, Kathmandu University, NEPAL	samirstha@ku.edu.np	Resource person and presenter in the paper ICCMS13 Contributed in workshop on Computational Algebra
3	Prof. Md. Kalimuddin Ahmad	Department of Mathematics, Director, Residential Coaching Academy, Aligarh Muslim University, Aligarh, INDIA	m.ahmad@iiu.edu.pk	Invited speaker: Diffusion filter models for Image restoration and enhancement Chairperson of the session A9
4	Prof. Satyananda Panda	Department of Mathematics, School of Natural Sciences, National Institute of Technology, Calicut Kerala, INDIA	satyanand@nitc.ac.in	Invited Speaker: Simulations of surfactant spreading using multi-grid method
5	Dr. Herry Suryawan	Department of Mathematics, Sanata Dharma University, Yogyakarta, INDONESIA	herrypribs@usd.ac.id	Invited Speaker: Stochastic Logistic Equations driven by Brownian Motion and Beyond
6	Prof. O.P. Vyas	International Institute of Information Technology-Naya Raipur, INDIA	opv@iiitnr.edu.in	Invited Speaker: Exploring Prescriptive Data Analytic approaches for Smart Cities. Chairperson of the session C7
7	Dr. Nahid Akhtar	Department of Mathematics, GC University Lahore, PAKISTAN	cbandesha@hotmail.com	Invited Speaker: Calculations of the Associated Legendre Functions of the First Kind in Ellipsoidal Co-ordinate System through Three Different Techniques
8	Dr. Nutan Kumar Tomar	Department of Mathematics, Indian Institute of Technology Patna, INDIA	mahendra14389@gmail.com	Resource person and presenter in the paper ICCMS 02
9	Dr. U.P. Liyanage	University of Kelaniya, Sri Lanka	liyanage@kln.ac.lk	Resource person in the special workshop on R Invited speaker: Mathematical and Statistical Modelling in Cancer Biology
10	Dr. V.P.A. Weerasinghe	University of Kelaniya, Sri Lanka	munasing@kln.ac.lk	ICCMS 96
11	Dr. D.D.M. Jayasundara	University of Kelaniya, Sri Lanka	jayasund@kln.ac.lk	Resource person on Special workshop on R
12	Dr. M.K. Abeyratne	University of ruhuna, Sri Lanka	abeyratn@maths.ruh.ac.lk	Resource person in Special Workshop on Computational Algebra and Special Session on Mathematical Modeling and Their Industrial Applications

13	Mr. Jayantha Munasinghe	University of Kelaniya, Sri Lanka	munasing@kln.ac.lk	ICCMS 117
14	Dr. Jagath Wijerathna	University of Colombo, Sri Lanka,	jagath@sci.cmb.ac.lk	Organizing committee member ICCMS 09 Chairperson of the sessions D1 and D2
15	Dr. S.S.N. Perera	University of Colombo, Sri Lanka,	ssnp@maths.cmb.ac.lk	Co-chair of ICCMS 2017 Resource person in the papers ICCMS 42 ICCMS 51 ICCMS 100

Following are the abstracts of the papers contributed and invited talks delivered by DAAD Alumina members.

ICCMS 02 Abstract (Dr. Nutan Kumar Tomar) – Proceeding, ICCMS-2017, pp 6-10

This paper proposes an observer design approach to synchronize Lorenz chaotic systems for applications in secure communication. First, we convert the given Lorenz system into a descriptor system and then an observer is designed for this descriptor system to synchronize the Lorenz system. The essence of the technique is based on the basic matrix theory.

ICCMS 09 Abstract (Dr. Jagath Wijerathna) – Proceeding, ICCMS-2017, pp 27-30

Generally, the evacuated-tube solar collectors (Water-in-glass) are installed with some inclination angle θ to the horizontal. The analysis of the sensitivity of the inclination angle on heat transfer process of evacuated tube is extremely important in installing a solar water heater system to achieve its maximum efficiency. To investigate the sensitivity of inclination angle, we calculate the heat transfer coefficient and the natural circulation flow rate for several acute angles by giving uniform heat flux at the upper lateral surface of the tube for a period of 15 minutes. The heat and fluid flow is assumed to be unsteady, two-dimensional, laminar and incompressible. For the discretization of the governing equations, the finite volume method is used and as a numerical tool, the OpenFoam software and the merged PISO - SIMPLE (PIMPLE) algorithm is used. The results show that with high inclination angles, the maximum temperature gain is low. However, with moderate level of inclination angle ($\theta = \pi/4$), the buoyancy induced flow is high and the maximum temperature gain is also considerably high where the portion of water particles which have maximum temperature is also considerably high. This result suggests a moderate level of inclination angle to improve the performance of a solar water heater.

ICCMS 13 Abstract (Dr. Samir Shrestha) – Proceeding ICCM-2017, pp 40-43

In this paper we present the numerical simulation to compute the thermophoretic force and velocity on a rigid spherical particle suspended in a micro-channel filled with rarefied gas. The rarefied gas is modelled by the Boltzmann equation and solved numerically using Direct Simulation Monte Carlo (DSMC) method. The motion of the rigid particle is governed by the Newton-Euler equations, where force and the torque on the particle are computed from momentum transfer of the gas molecules with the particle. Numerical results are obtained for

wide range of Knudsen numbers and compared with the theoretical results.

ICCMS 49 Abstract (Dr. SSN Perera) - Proceeding, ICCMS-2017, pp 141-144

This paper presents a dynamic modelling framework for simulating the growth of a tree with environment interactions which allows a tree to adapt to the distribution of light and proximity to solid obstacles. In our method, growth space of a tree was implemented as a grid of voxels and light was approximated as a Laplacian distribution where each voxel has a discrete intensity value. Sensitivity to the environment was simulated based on the hypothesis that a branch has a higher tendency to grow towards availability of light. Generation of a branch was determined by probabilistic evaluation of the growth candidates (buds) based on the resource availability in the environment. Geometric properties of the branches were continuously evaluated with addition of branches in order to represent the growth of the tree. Our model generates dynamic output which shows response to the light and the presence of obstacles in the growth space.

ICCMS 51 Abstract (Dr. SSN Perera) - Proceeding, ICCMS-2017, pp 150-153

Physical activities are important for humans for strong and healthy life. During these activities body temperature varies and the human body has a system to maintain the temperature in a constant value. This process varies according to environmental, biophysical and demographic characteristics. Therefore it is important to identify the temperature variation of the skin layer in order to prevent injuries. One dimensional mathematical model considering the Pennes bio heat equation is developed to study the effect of physical activities on temperature variation of the skin. The model is solved numerically using finite difference approximation. Simulation is carried out using a MATLAB program. The effect of different physical activities, the effect of different environmental conditions and the effect of demographic characteristics on temperature variation in the skin are considered for the simulations.



ICCMS 100 Abstract (Dr. SSN Perera) - Proceeding, ICCMS-2017, pp 316-318

Nowadays world have to deal with large number of diseases which are challenging public health. Anyhow these diseases are preventable based on interventions placed on various levels of transmission of the disease. One such attempt by the modern day researchers is to incorporate the disease transmission into a mathematical model and find a solution to control these diseases. In the basic context, rate of change of susceptible, infected and immune population describes the way of disease transmission regardless of proper quantification of phenomena associated with accumulations such as history of infection, immune response, burden of a disease and effect of prolonged treatments. In that perspective this study conveys a

feeling for modeling in terms of integrals to cater the accumulations mentioned above along with integral equations. The study expresses several possible alterations and refinements to enhance the applicability of integral equations. In three cases, we present an easier way of incorporating an accumulation subject to time lag, manipulating Lebesgue integration instead of Reimann integration to cater higher degree of discreteness and structural refinements to incorporate increasing complexity of phenomena.

ICCMS 96 Abstract (Dr. V.P.A. Weerasinghe) - Proceeding, ICCMS-2017, pp 300-302

Mostly disasters are at the center of different scientific and societal discussions since the impact of disasters on human society and the global environment has become severe in recent decades. Vulnerability is defined as ‘the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard’. The Disaster Management Center (DMC) of Sri Lanka is responsible for planning disaster mitigation for the country. They have recognized 07 disasters namely tsunami, cyclones, floods, fires, road accidents, dengue fever, and filaria in Panadura Urban council area to model the vulnerability. Primary data collection was done through the community base participatory programs from selected 5 GN divisions. Secondary data collection was done for same disasters for those selected 05 GN divisions as well as for other 14 GN divisions. According to the final vulnerability map of Panadura Urban Council area, as the highest vulnerable areas, Walana & Nallooruwa were identified. It is important to use this vulnerability map for any future development of the area to minimize negative impacts of disasters of the area.

ICCMS 98 Abstract (Prof. Dr. Tanka Nath Dhamala) – Proceeding ICCMS-2017, pp 307-311

Increasing disasters worldwide have drawn the attention of researchers in emerging field of disaster management. We consider the key models on transportation and planning networks for maximizing the flow and minimizing the cost within the limited time horizon in emergencies. Although there are varieties of models and solution techniques in evacuation planning, either analytical or simulation, it is quite challenging to develop a universally accepted solution strategy. The most acceptable optimization, simulation and heuristics on dynamic flows, abstract flows, lossy networks and facility station will be discussed in this paper. A number of earlier models and solution approaches have been generalized. This work focuses mainly on the contraflow reconfiguration strategy which plays a vital role in increasing the flow value significantly in drastically reduced time. The in depth analysis and implementation highlights will prove the efficiency of the techniques we deal with.

ICCMS 117 Abstract (Mr. Jayantha Munasinghe) – Proceeding ICCMS-2017, pp 386-388

The present study was carried out with an attempt to observe and analyze the tidal height changes due to the motion of the Sun, Moon and Earth, in West coastal area of Sri Lanka. Tidal heights from the Mean Sea Level (MSL) were measured in every 15 minutes throughout the year 2015 using the tide pole installed in the sea, 100m away from Colombo Fort which was built by the Hydrography Survey Unit of the Sri Lanka Navy. Using obtained data the behavior of tidal waves was identified. The main tidal constituents were obtained using the Fast Fourier Transformation (FFT) and Interpolation method as indicated in Table 2. The mean value of the High Water Level (MHWL) and the mean value of the Low Water Level (MLWL) of the tides were then calculated for each month of the year. There after these mean values were used for updating the Mean Sea Level (MSL). The main tidal constituents for each month were then used

to observe the behavior of tidal waves.

Invited Talk Abstract: Diffusion filter models for Image restoration and enhancement

(Prof. Md. Kalimuddin Ahmad) – Invited Talk Book ICCMS 2017, pp 35

Diffusion filtering is all along a difficult task in image processing. Starting with the work of Perona and Malik, it has attracted the attention of people working in the domain of Mathematics and image processing. Filters make it possible to smooth images while preserving edges.

The research group of the author investigated the use of sharp function as an edge detector through well-known diffusion models. It is an alternative to gradient based diffusion.

Further, in order to restore noisy blocky images, Rudin, Osher and Fatemi have proposed to minimize the total variation under constraints which reflect assumptions about noise.

In my presentation, I shall discuss various non-linear isotropic / anisotropic diffusion models for image denoising / restoration undertaken by my research group.

Invited Talk Abstract: Simulations of surfactant spreading using multi-grid method (Prof. Satyananda Panda) - Invited Talk Book ICCMS 2017, pp 36

In this talk, a multigrid approach is proposed for the simulations of surfactant spreading on a thin liquid film. The model equations for the descriptions of the surfactant dynamics are the coupled non-linear partial differential equations in cylindrical coordinates. The governing equations are discretized using the finite volume method on a uniform grid with implicit flux discretization. The discretized system is solved using the multigrid method such as the full approximation scheme. The obtained simulation results are discussed for different flow parameters.

Invited Talk Abstract: Stochastic Logistic Equations driven by Brownian Motion and Beyond (Dr. Herry Suryawan) - Invited Talk Book ICCMS 2017, pp 37

In this talk we present an analytical study of a stochastic logistic equation. First, we introduce the mathematical model of population growth in a stochastic environment with focus on the Verhulst model. Next, we solve the stochastic logistic equation driven by Brownian motion by using tools from the Ito calculus. Some qualitative aspects of the solutions will be also discussed within the framework of diffusion processes theory. Finally, we present the construction of a stochastic logistic equation driven by Liouville fractional Brownian motion and derive an explicit solution using the method of semimartingale approximation.

Invited Talk Abstract: Exploring Prescriptive Data Analytic approaches for Smart Cities (Prof. O.P. Vyas) - Invited Talk Book ICCMS 2017, pp 32

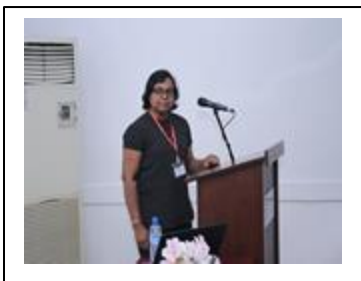
Smart cities are being conceived and developed to improve livability and to ease city government and organization, while providing efficient service to the citizens. The primary role enabling this vision is to keep the decision makers, the stake holders and the citizen constantly updated with relevant data collected around the city and processed appropriately to provide useful insight for timely decision making. To accomplish this task, cities in future will have billions of heterogeneous devices ranging from tiny communicating objects (*e.g.*, actuators, sensors, tags) able to interact with the surrounding environment and remote systems, to high-

end nodes (e.g., data centers, workstations) capable of complex operations and processing a huge amount of information. By making uses of cyber and physical data accessible by Smartphones, we can analyze the situation and produce actionable knowledge from the data. Though prevalent Data Analytic approaches namely Descriptive and Predictive approaches have given rise to many algorithms and techniques ranging from traditional Association Rule mining algorithms to classification and regression techniques, but the demands from real-time applications necessitates the prescriptive approaches which take advantages of existing advances in the field of Linked Open Data (LoD). LoD with Web 3.0 has already started influencing the conventional Data Analytic approaches, it is proposed to discuss that how the RDF triples can be integrated and processed with traditional operational data, being generated in Smart City Environment to deliver meaning and actionable knowledge by the autonomous systems. The developments in SPARQL, Linked Open Data Cloud mining and other related approaches are proposed to be discussed.

It will also be explored how existing Data Analytic Solutions are constrained with the limited customization required for Smart City Analytics, which will have stringent demands with proactive, real time information delivery. It is being proposed all the related aspects be discussed in a series of deliberations with relevant case studies.

Invited Talk Abstract: Calculations of the Associated Legendre Functions of the First Kind in Ellipsoidal Co-ordinate System through Three Different Techniques (Dr. Nahid Akhtar) - Invited Talk Book ICCMS 2017, pp 38

In this paper the associated Legendre functions of the first kind in ellipsoidal co-ordinates are evaluated by using different techniques, namely, recurrence relations, hypergeometric series, and perturbation techniques. At higher degrees and orders, the values obtained from recurrence relations become indefinite. Although hypergeometric series give exact solutions, it is complicated in its structure; therefore, we look for an alternative technique. Because of this, in this paper, we discuss a relatively simple technique known as perturbation technique. By this technique of order two, of order four and of order six, we find required results and conclude that as we move from perturbation technique of order two to perturbation technique of order six, the values get closer and closer to the values obtained from the hypergeometric series. The idea of this work is borrowed from the work of G. Sona, "Numerical problems in the computation of ellipsoidal harmonics", *Journal of Geodesy*, 1995, where the author applied the above perturbation technique of order two only to get approximations of the associated Legendre functions of the second kind in the ellipsoidal co-ordinates.



6. Invited Talks (Other than DAAD Alumina Members)

Following invited talks were delivered by a diverse and an expert group of resource persons

from USA, Germany, Sweden, India, Pakistan, Indonesia, Japan, China, Australia, Nepal, Poland and Singapore along with Sri Lankan resource persons.

	NAME	INSTITUTE	COUNTRY	TALK TITLE	SESSION
1	Prof. Vernon Cooray	Uppsala University	Sweden	The mechanism and effects of lightning flashes	KEYNOTE 01
2	Prof. Paul E. Smith	Kansas State University	USA	Preferential Interactions in Chemistry and Biochemistry	KEYNOTE 02
3	Prof. Sree Hari Rao Vadrevu	International Centre for Interdisciplinary Research & Innovation	India	Can we make this world a happier place to live?	KEYNOTE 03
4	Prof. Leif Ellingson	Texas Tech University	USA	Statistical Shape Analysis via Statistics on Manifolds	KEYNOTE 04
5	Prof. Leah B. Casabianca	Clemson University	USA	Computational Modeling and Experimental NMR Chemical Shift Studies of Self-Association in Nanaphthalenedicarboxylic Acids	A1
6	Dr. Udayana Ranatunga	University of Peradeniya	Sri Lanka	Single Site Coarse-graining of Nanoparticles	A2
7	Dr. Dhammika Amaratunga	Princeton Data Analytics, LLC	USA	Enriched random ensembles for classification of high-dimensional data	B1
8	Prof. Jingbo Wang	University of Western Australia	Australia	Quantum walks and their efficient physical implementation	C1(1)
9	Prof. Bhaskaran Muralidharan	Indian Institute of Technology Bombay	India	Quantum clocks and information driven heat engines	C2
10	Prof. Paul E. Smith, ,	Kansas State University	USA	Preventing Excessive Aggregation in Simulations of Salt Solutions	A3
11	Dr. Ranga Jayakody	University of Sri Jayawardenepura	Sri Lanka	Computer Aided Drug Discovery (CADD) - a Virtual Shortcut	A4
12	Prof. W.N. Wickremasinghe	University of Colombo	Sri Lanka	New Trends in the Design and Analysis of Experiments	B4
13	Dr Liwan Liyanage	Western Sydney University	Australia	Environmentally Integrated Data Platform for Spatio-Temporal Data Analysis: Case Study on Asthma	B5
14	Prof. Edy Soewono	Institut Teknologi Bandung	Indonesia	Mathematical Modeling of the Insecticide Exposure in Mosquito Control	C3
15	Prof. Neelika Malavige	University of Sri Jayawardenapura	Sri Lanka	Mathematical Modeling in Controlling Dengue in Sri Lanka	C4
16	Dr. Nuning Nuraini	Institut Teknologi Bandung	Indonesia	A Simple Model of Dengue Incidences in Semarang City, Indonesia	C5(2)
17	Prof. Sree Hari Rao Vadrevu	International Centre for Interdisciplinary Research & Innovation	India	Modeling of Glucose-Insulin Regulatory Systems and Diabetes	C5(1)
18	Mr. Dadang Amir Hamzah	Institut Teknologi Bandung	Indonesia	Energy decay in Lotka-Volterra reaction-diffusion competition model	C6(1)
19	Dr. Pardomuan Sitompul	Universitas Negeri Medan, Medan	Indonesia	Blow up solutions to a modified logistic diffusive equation	C6(2)
20	Prof. C.M. Chandrashekar	Institute of Mathematical Sciences	India	Quantum simulations of Free quantum field theory using discrete-time quantum walk	S1(1)

21	Prof. Gavin Brennen	Macquarie University	Australia	Practical quantum simulators for quantum field theory	S1(2)
22	Prof. Etsuo Segawa	Tohoku University	Japan	Variety of expressions of discrete-time quantum walks	S2(1)
23	Prof. Norrio Konno	Yokohama National University	Japan	Limit theorems and stationary measures of quantum walks	S2(2)
24	Prof. Yusuke Ide	Kanagawa University	Japan	Spectral analysis for discrete-time quantum walks on the path	S3(1)
25	Dr. Nihal Yapage	University of Ruhuna	Sri Lanka	An Introduction to Classical & Quantum Information geometry with Applications	S3(2)
26	Dr. Josh Izaac	university of Western Australia	Australia	A continuous-time quantum walk-based centrality measure and its experimental realization	S4
27	Dr. IMK Fernando	University of Colombo	Sri Lanka	Lighting Research in Sri Lanka	A7(2)
28	Dr. Janaka Wansapura	University of Colombo	Sri Lanka	Machine learning in medicine	A8
29	Prof. A. Nanayakkara	National Institute of Fundamental Studies	Sri Lanka	Non-classical conditionals inherited in quantum coins and quantum entanglement	B9
30	Dr. Suppiah Ramasamy	Ocean and Atmosphere, CSIRO	Australia	Climate Change in South Asia from CMIP5 Simulations	C7
31	Dr. Yi Zhang	Chinese Academy of Sciences	China	Urbanization, environment and health in China	C8(2)
32	Dr Indrika Rajapaksha	University of Moratuwa	Sri Lanka	Exploring nexus between Urbanization, Built Environment and Health: Case Study of Colombo	C9
33	Prof. Ranjan K Mohanty	South Asian University	India	BLAGE Algorithm for the Solution of 2D Elliptic Diffusion-Convection Equation	A5
34	Dr. Deepa Sinha	South Asian University	India	Dynamic Model using Signed Graphs	A5(1)
35	Dr. Jagdish Chand Bansal	South Asian University	India	Swarm Intelligence for Optimization	A5(2)
36	Dr. Kapil Kumar Sharma	South Asian University	India	Robust Numerical Method for Singularly Perturbed Differential Equations with Delay/Advance	A5(3)
37	Dr. P. Dhanumjaya	BITS Pilani-K K Birla Goa Campus Zuarinagar	India	Discontinuous Galerkin Finite Element Methods for the One Dimensional Rosenau Equation	A5(4)
38	Dr. V V M Sarma Chandramouli	BITS Pilani-K K Birla Goa Campus Zuarinagar	India	Numerical Simulations on Hénon Renormalization	A6
39	Prof. S. Chakraverty	National Institute of Technology Rourekela	India	Quantum Neural Network: Recent Paradigm in Connectionist Learning	C1(2)
40	Dr. Wojciech Plazinski	Polish Academy of Sciences	Poland	Simulations of carbohydrates: beyond standard molecular dynamics	
41	Prof. Dr. Gerhard Pfister	Universität Kaiserslautern	Germany	Singular and Applications	Special session
42	Prof. Dr. Wolfram Decker	Universität Kaiserslautern	Germany	What Can be Computed in Algebraic Geometry?	Special session
43	Prof. Yudi Soeharyadi	Institut Teknologi Bandung	Indonesia	Resource Person Computational Algebra	

7. Contributed Papers

There were 120 papers submitted for review in which 95 papers were accepted for the proceedings of ICCMS 2017. Over 50% of these selected papers are foreign papers while some from the remaining are local papers with foreign contribution. Most of the papers sustained a remarkable quality and covered a variety of research fields.

Below is a summary of the papers that were presented.

Paper ID	Title	Authors	Presenter
ICCMS01	Tone Based Voice Synthesizer Framework for Voice Based Application Development	Shanaka Caldera, Chamindra Kumburegama, Shehan Kodithuwakku, Shamilka Hingalagoda, Anjalie Gamage and Asanthika Imbulpitiya	Mr. H. S. U. Caldera
ICCMS02	Observer Design Approach to Synchronize Lorenz Chaotic Systems for Secure Communication	Sonam Chandra, Mahendra Kumar Gupta and Nutan Kumar Tomar	Dr. Nutan Kumar Tomar
ICCMS03	A Multi-Agent Based Simulation Model to Study the Impact of Teamwork Quality on Success of Software Development Projects	Ruchini Sujanthi, Thashika D Rupasinghe and Janaka Wijayanayake	Ms. P.D.R.S. Kumari
ICCMS04	Applicability of Simulation Techniques in Assessing the Impact of Corporate Social Performance on Talent Attraction	Taniya Lewwanduwage, Upamali Amarakoon and Thashika Rupasinghe	Ms. T. M. Lewwanduwage
ICCMS05	Determination of the rates in isomerization reactions of HONO	Manoj Wijesingha and Asiri Nanayakkara	Mr. A. G. M. S. Wijesingha
ICCMS07	Expert System to Forecast Exchange Rate behaviour towards News Surprises: An application to EUR/USD Exchange Rates	Hasanthi Pathberiya, Chandima Tilakaratne and Liwan Liyanage	Ms. Hasanthi Pathberiya
ICCMS09	Sensitivity of the thermal performance of a water-in-glass evacuated tube solar water heater to the tube inclination angle	Kanakanige Diana Nilmini Kumari and Jagath Kumara Wijerathna	Dr. JK Wijerathna
ICCMS10	Kirkwood Buff Derived Force Fields for Esters	Gayani Pallewela and Paul Smith	Dr. Gayani Pallewela
ICCMS11	Portfolio Optimization through Quadratic programming when there is perturbation in the return matrix	Nuwani Dharmathilaka	Mr. Lakmal Prabhash Ranasinghe
ICCMS13	Numerical Simulations to Compute the Thermophoresis on a micro-scale spherical particle suspended in a Rarefied Gas	Samir Shrestha, Sudarshan Tiwari and Axel Klar	Dr. Samir Shrestha
ICCMS16	Non-Hermitian Hamiltonians of $sl(2, C)$ Lie algebraic type and similarity transformations	Thilagarajah Mathanaranjan and K Himalini	Dr. Thilagarajah Mathanaranjan
ICCMS17	A Numerical Study on Fourier Continuation	Buddhika Chathuranga Bandara Jayawardana and Jinendrika Anushi Weliwita	Mr. B.C.B. Jayawardana
ICCMS20	Computational modelling based thickness analysis to detect circular leaf	Ruchire Eranga Wijesinghe, Mansik Jeon and Jeehyun Kim	Mr. Ruchire Eranga Wijesinghe

	spot disease of persimmon leaf specimens using optical coherence tomography		
ICCMS21	The role of temperature and movement of humans for the spread of dengue disease between two patches	Ganga Ram Phaijoo and Dil Bahadur Gurung	Mr. Ganga Ram Phaijoo
ICCMS22	Impact of Decoherence on Quantum Random Walks	Mahesh Jayakody and Asiri Nanayakkara	Mr. Mahesh Jayakody
ICCMS23	Periodic Disappearance of Entanglement in Coined Quantum Walks	Randika Dodangodage and Asiri Nanayakkara	Mr. Randika Lakshman
ICCMS25	A Study on temperature distribution of porous fin with uniform magnetic field in vertical isothermal surface of fractional order energy balance equation by using Adomian decomposition sumudu transform method	Trushit Patel and Ramakanta Meher	Mr. Patel Trushitkumar Vishnubhai
ICCMS26	A Study on counter – current imbibition phenomena for two phase flow process in a Homogenous porous media	Hardik Patel and Ramakanta Meher	Dr. Ramakanta Meher
ICCMS27	Agent Based Simulation Approach to assess the Online Consumer Buying Experience from the Human Computer Interaction (HCI) Perspective	Thashika Rupasinghe and Nadeeka Kiringoda	Ms. Nadeeka Malkanthi
ICCMS28	Vector-host Dengue Dynamics incorporating ADE Effect	Arti Mishra and Sunita Gakkhar	Prof. Sunita Gakkhar
ICCMS29	Simulation of Symmetric and Asymmetric movement gaits for Lateral Undulation in Serial Snake Robots	Dinal Herath and Kithsiri Jayananda	Mr. Dinal Herath
ICCMS33	Modelling and Simulation of Sekku Performance to Describe Important Phenomena Related to Its Behavior	Chaya Ranathunga and Kirthi Walgama	Ms. Chaya Ranathunga
ICCMS34	A Multi-Agent Based Simulation Model to Assess the Consumer Purchasing Patterns	Thashika Rupasinghe and Iromi Paranavithana	Ms. Iromi Randika Paranavithana
ICCMS35	Selecting Potential Cities for the Silicon Valley of Indonesia using Mathematical Model	Novriana Sumarti	Dr. Novriana Sumarti
ICCMS36	Prey-Predator model in a Heterogeneous Habitat with Prey Refuge in the Presence of Toxicity	Reenu Rani	Ms. Reenu Rani
ICCMS37	Simulating All Optical Switching Based on 2-D Nonlinear GaAs Photonic Crystals with Side Coupled Microcavities	Pravini Fernando and Imalie Gamalath	Ms. Pravini Fernando
ICCMS38	Pre-screening Drug-Cyclodextrin Complexes Using Implicit Solvent Simulations	Rumesh Nelumdeniya and Udayana Ranatunga	Mr. Rumesh Nelumdeniya
ICCMS39	Predictive data mining system to diagnose pregnancy complications	S Sharmilan and Hapugahage Thilak	Mr. S. Sharmilan
ICCMS42	Screening of Sri Lankan Natural Products against human	Senal Dinuka and Chinthaka Ratnaweera	Mr. Senal Dinuka

	Acetylcholinesterase; an in-silico approach		
ICCMS45	A high-order compact scheme and exponential fitted operators for singular perturbation problems	Navnit Jha	Dr. Navnit Jha
ICCMS46	Numerical simulation of Indoor air flow distribution in naturally ventilated kitchen under different ventilation conditions	Buddhi Sapkota, Kedar Nath Uprety, Harihar Khanal and Prakash V. Bhave	Mr. Buddhi Sapkota
ICCMS47	Goodness of Fit tests and Bugs in R	Oshadhi De Silva and Asoka Ramanayake	Ms. N. O. V. De Silva
ICCMS48	A Non- Probabilistic Temperature Dependent Dynamic Model to Dengue Disease Transmission in Urban Colombo	Tharindu Wickramaarachchi and Sanjeewa Perera	Dr. Tharindu Wickramaarchchi
ICCMS49	A Simulation Model for Interactive Tree Growth in a Complex Environment	Damith Jinasena and Upul Sonnadara	Mr. Damith Jinasena
ICCMS51	The Effect of Physical Activities on Temperature Variation in the Skin: A Mathematical Modelling Approach	Ilngamage Thilini Sashika Piyatilake, S. S. N. Perera and S. D. P. Jayasundara	Dr. Thilini Piyatilake
ICCMS52	Intra-period Water Market Clearing Model for a Mixed-Use Single Reservoir Catchment	I Mahakalanda	Dr. I Mahakalanda
ICCMS53	Protein Structure Variability Of OsHKT1;5 Homologous Transporters In Grasses	Pabasara Weerasinghe and Chandima Ariyaratna	Ms. P. R. Weerasinghe
ICCMS55	Application of fixed neighbourhood method for meshfree based plant cell models to reduce computational cost	Prasadi Hansani, Chaminda Karunasena and Sumith Baduge	Ms. K.G.P. Hansani
ICCMS56	Coarse-grained models of mammalian endocytic organelle lipid bilayers	Elizabeth Ploetz	Dr. Elizabeth Ploetz
ICCMS57	Potential inhibitors for Human Renin Enzyme from selected natural products available in Sri lanka – An in-silico study	Dilki Perera and Chinthaka Ratnaweera	Ms. Dilki Perera
ICCMS58	An Algorithm to Find the Distance between Any Two Railway Stations Allowing the Modifications to Existing Database	Shadi Heenatigala, Chandramali Piyasundara, Yasasya Batugedara and Jayantha Lanel	Ms. Ysasya Batugedara
ICCMS59	Binding Interaction of Coumarin Derivatives to Estrogen Receptor Protein – An in-silico study	Tharushi Silva and Chinthaka Ranaweera	Ms. C. Tharushi R. Silva
ICCMS60	Application of Queuing theory to enhance the quality of performance of a bank	Dilani Jayaweera, Thevasha Sathiyakumar and Jayantha Lanel	Ms. T. Sathiyakumar, Ms. Dilani Jayaweera
ICCMS61	Ancient Grantha Characters Recognition in Palm Manuscripts using Neural Networks	Vellingiriraj E.K, Nalini S and Balasubramanie P	Ms. S. Nalini
ICCMS62	Multilevel Analysis of G.C.E. Ordinary Level Performance of Schools in Northern and Eastern Provinces of Sri Lanka	Geemini Kulawardana and Roshini Sooriyarachchi	Ms. D.G.I. Kulawardana
ICCMS63	Predicting Thermal Comfort in an office building using Energy Simulation and	Priyantha Bandara, Viraj Nimarshana and Rahula	Mr. RMPS Bandara

	Computational Fluid Dynamics	Attalage	
ICCMS64	Modeling and simulation of binary repeated measures: The small sample case	Tharkeshi Dharmaratne and Marina Sooriyarachchi	Ms. A. D. V. T. T. Dharmaratne
ICCMS65	Application of a modified mathematical model for fuel pricing in Sri Lanka	Pabasara Embuldeniya and Tissa Dodangoda	Ms. B.Pabasara Embuldeniya
ICCMS67	Measuring Landslide Vulnerability, Based on Rainfall Data, Acquired Through Satellite Images	Ashra Wickramathilaka, Wathsala Gunewardena and Chathurthi De Silva	Ms. Ashra Madhubhashini Wickramathilaka
ICCMS68	Climate Change Projections Over Sri Lanka	A Thevakaran, J.L McGregor, J Katzfey, M Thatcher, R Suppiah and D.U.J Sonnadara	Dr. Arunasalam Thevakaran
ICCMS70	Rotational Diffusion of Liquid Methane: A Molecular Dynamics Simulation Study	W.A.Monika Madhavi, Konstantin Momot and Samantha Weerasinghe	Ms. W.A.Monika Madhavi
ICCMS71	Sweeping through history: an exploration in the analysis of topical trends in news coverage in Sri Lanka	P.U. Liyanaarachchi, A.R. Weerasinghe and E.R.A.D. Bandara	Ms. Peshadi Udarangi Liyanaarachchi
ICCMS72	Novel Cyclooxygenase based anti-inflammatory and anti-cancer drugs from Sri Lankan natural products - an in-silico study	D V D Samarasinghe and Chinthaka Ratnaweera	Ms. D V D Samarasinghe
ICCMS73	Statistical Computing for Statistical Process Control: Rweb Web Application for I-MR Control Charting in Rubber Manufacturing Process	M Prabhashrini Dhanushika, B M S G Banneheka and H M L K Herath	Ms. M P Dhanushika
ICCMS74	Investigation of the formation of molecular wires of polar molecules in carbon nanotubes	Kosala Amarasinghe and Samantha Weerasinghe	Mr. Kosala Amarasinghe
ICCMS75	Finding of ibuprofen-like molecule from chemical compounds from Sri Lankan flora to control β -amyloid aggregation	Chandana Wijayasiri and Samantha Weerasinghe	Ms. Chandana Wijayasiri
ICCMS76	Evaluate Urban Heat Island Effect with reference to the land cover change in Colombo, Sri Lanka	Nayomi Hewa Heliyagoda Kankanamge and Lakshan Dissanayake	Ms. H.H.K.R.Nayomi
ICCMS77	Segmentation of Shoulder Movements Using Inertial Sensors and Entropy	Sajeewani Karunarathne Maddumage	Dr. Sajeewani Karunarathne
ICCMS78	A supra-convergent scheme for the numerical solution of three-space dimensions convection-diffusion equation	Bhagat Singh and Navnit Jha	Mr. Bhagat Singh
ICCMS79	Optimal control of the velocity term in a Kirchhoff plate equation with multiplicative control	Ramdas Sonawane and Anil Kumar	Dr. Anil Kumar
ICCMS80	A New Spline in Tension Method of Order Four in Space and Order Two in time for the Solution of 1D Wave Equation in Polar Coordinates	Ranjan Kumar Mohanty and Gunjan Khurana	Mr. Gunjan Khurana
ICCMS81	Interpreting Analytically the Effect of Buffer on Calcium Distribution for Alzheimer's Disease	Devanshi Dave and Brajesh Jha	Dr. Brajesh Kumar Jha

ICCMS82	A simulation procedure on choosing the wave length in Respondent Driven Sampling	Hasani Indunil Pathirana and Asoka Ramanayake	Ms. H.I.Pathirana
ICCMS83	Developing a Green Area Ratio for Industrial Zones in Sri Lanka	Madusha Tennakoon and Wathsala Gunawardena	Ms. Madusha Thennakoon
ICCMS85	Some applications of quantum sparse Toeplitz implementation	Anuradha Mahasinghe and Jingbo Wang	Dr. Anuradha Mahasinghe
ICCMS86	Emergence of scale-free networks and small-world properties in psychosocial feelings expressed on social media	Kaushalya Premachandra and Thejan Rajapakshe	Mr. Thejan Rajapakshe
ICCMS88	Modelling, Simulation and Control of an Offshore Load Transfer System	Dimuthu Dharshana, Jagath Srilal and Subodha Tharangi	Mr. Dimuthu Dharshana
ICCMS89	Binding affinities of Gi and Gs proteins to the β_2 -adrenergic receptor: insights from the coarse-grained molecular dynamics simulations	Anita Plazinska, Wojciech Plazinski and Michal Kolinski	Dr. Anita Plazinska
ICCMS90	A new approach of numerical analysis to solve higher order ordinary differential equations using the Taylor Series	Hansi Abeynanda and Eshani Fernando	Ms. Hansi Abeynanda
ICCMS93	Modelling persistent storage in opportunistic networks	Gishani Rangoda and Nalin Ranasinghe	Ms. Gishani Surangika Rangoda
ICCMS94	Grid Search based Parameter Tuning of Dynamic Neural Network to Forecast Daily Reservoir Inflow	W.M.N Dilini Basnayake, Dilhari Attygalle, Liwan Liyanage Hansen and K.D.W. Nandalal	Ms. Dilini Basnayake
ICCMS95	Investigation of the Corticosteroid binding globulin deficiency: A computational approach	Samith Rathnayake and Samantha Weerasinghe	Mr. Samith Rathnayake
ICCMS96	Model vulnerability of disasters; Integration GIS with the participatory approach at local level and district level referring Panadura Urban Council area, Sri Lanka.	Weerasinghe, V.P.A., Jayasinghe L., Karunarathne M. K. H. S., Lakmali A.A.R., Ranjitha L.K.H.K.	Dr. V.P.A. Weerasinghe
ICCMS97	Resilience of Complex Networks with Heterogeneous Nodes	Sugandima Weragoda, Janaka Wansapura, Dharshana Kasthurirathna	Ms. Sugandima Nishadi Weragoda
ICCMS98	Dynamic Flow Models and Algorithms for Evacuation Planning	Tanka Nath Dhamala, Ram Chandra Dhungana, Urmila Pyakurel	Prof. Tanka Nath Dhamala
ICCMS99	Case study on measuring central tendency of a set of time series based on discrete Haar wavelet	CP Waduge, NC Ganegoda	C P Waduge
ICCMS100	Mathematical structures for integrals to enhance the applicability of integral equations in modeling disease transmission: A preliminary study	RGUI Meththananda, NC Ganegoda, SSN Perera	Ms. R.G.U.I. Meththananda
ICCMS101	A Delayed Chemostat Model of Bacteria-Bacteriophage Interaction	Saroj K. Sahani	Dr. Saroj Kumar Sahani
ICCMS102	Stability analysis of a latent infection model of HIV with cell to cell transmission and drug therapy	Yashi, Saroj K. Sahani	Dr. Saroj Kumar Sahani
ICCMS103	Molecular Simulation Study of the Effect of Ethanol-Water Composition on the Structure of Egg White Lysozyme	Lakshitha Perera and Samantha Weerasinghe	Mr. B. Lakshitha Ayeshmantha Perera

ICCMS104	Vessel Path Prediction using Kalman and Particle filters	Jaliya Amarasinghe, M. D. T. Attygalle, Damith Sandaruwan	Mr. Jaliya Amarasinghe
ICCMS105	Simulation of SPD performance against the CG induced voltage under different grounding conditions	N Sapumanage, S Nanayakkara, L Chandimal, P Hettiarachchi, M Fernando, V. Cooray	Mr. N.C.Sapumanage
ICCMS106	Modelling of surge arrester module to simulate commercially available surge protection devices	N Sapumanage, S Nanayakkara, L Chandimal, P Hettiarachchi, M Fernando, V. Cooray	Mr. N.C.Sapumanage
ICCMS107	Comparing the Performance of Randomization Tests and Traditional Tests: A Simulation Study	W.B.M.R.D. Wijesuriya, C.H.Magalla, D. Kasturiratna	Ms. Rushani Wijesuriya
ICCMS108	Analysis of the Relationship of Stock Market with Exchange Rate And Spot Gold Price of Sri Lanka	W.T.N. Wickramasinghe R.A.Disanayake T.M.J.A.Coaray	Mr. Thilanka Wickramasinghe
ICCMS109	Variational Iteration Method for Solving Shallow Water Wave equations	P. Karunakar and S. Chakraverty	Mr. Karunakar Perumandla
ICCMS110	Solving Fuzzy Radon Transport Equation	T.D. Rao, S. Chakraverty	Prof. S. Chakraverty
ICCMS 111	Some properties of signed graphs of Cayley Sum graphs	Deepa Sinha, Deepakshi Sharma	Ms. Deepakshi Sharma
ICCMS 112	Some Properties of Comaximal Graph	Deepa Sinha, Anita Kumari Rao	Ms. Anita Rao
ICCMS 113	Selective Harmonic Elimination Control of CMLI with Unequal DC sources Using NR Algorithm with Random guess	V.Joshi Manohar, K.Venkata Ramana, P.Pandarinath	Dr. V. Joshi Manohar
ICCMS 114	Modelling and simulation of turbulent flow control in a twin air-intake duct using synthetic jets	Yadav Krishna Kumar Rajnath, Anuj Jain, Akshoy Ranjan Paul	Dr. Akshoy Ranjan Paul
ICCMS 115	Exploring Cannulation Process in Chemotherapy through a Computer Simulation	Ante Priodan, Liwan Liyanage, Jeewani Anupama Ginige	Dr. Liwan Liyanage
ICCMS 116	Triangular Ring Elements Based Finite Element Estimation to Study the Effect of NCX on Calcium Dynamics in Nerve Cell	Amrita Jha, Brajesh Kumar Jha	Dr. Amrita Jha
ICCMS 117	Tidal Variation of West Coastal Area of Sri Lanka	Munasinghe J, Gunasekera HDS	Mr. J Munasinghe

8. The Outcomes

The following outcomes had been experienced;

- A conference to discuss the work carried out across many disciplines was provided.
- The use of computer modeling and simulation approaches in multi-disciplinary research was enhanced.
- The interest and understanding on the importance of using computer simulation and modeling in application research were improved.
- New collaborations with national and international researchers to enhance use of computational modeling and simulation were initiated.
- The industry was exposed to the potential in modeling and simulation in solving complex problems.
- Follow-up forums and conferences.
- The conference witnessed a large number of participants even greater than anticipated.

It had been an event that many obtained the opportunity to share knowledge with each other, to develop contacts with co-researchers and also to improve their own research work.



Acknowledgements

None of the above activities would have been possible if not for the financial aid received from the DAAD and the support received by our partners. Further we greatly acknowledge the financial support received by DAAD without your support DAAD alumina event would not possible. Finally, support received from 13 DAAD alumina memers are higly appreciated.