

## ABOUT THE INTERNATIONAL CONFERENCE

Nonlinear Complex Systems, a domain within mathematics and physics, focuses on systems governed by nonlinear equations or laws. This field studies systems that exhibit intricate behaviors and often manifest chaotic patterns, characterized by their sensitivity to initial conditions. Researchers in this field apply its principles across various disciplines, such as engineering, biology, and economics, offering insights into complex dynamics that defy simple linear explanations.

On the other hand, in the realm of artificial intelligence (AI), Computational Intelligence specifically focuses on developing algorithms and models inspired by human cognitive processes. For example, artificial intelligence, including machine learning, and other advanced computational methods are used to analyze, model, and make predictions about behaviors within complex systems. The objective of Computational Intelligence is to tackle complex problems and facilitate intelligent decision-making across diverse domains.

The combination of the fields of Nonlinear Complex Systems and Computational Intelligence in an international conference suggests an interdisciplinary event where researchers, academicians, and practitioners converge to share research findings, exchange ideas, and discuss advancements. This synthesis encourages a collaborative environment that bridges mathematical intricacies and AI-driven solutions to real-world challenges.

**This conference will focus on:**

- **Nonlinear systems and their complex nature**
- **Chaotic and synchronization**
- **Numerical analysis and the development of algorithms for simulation**
- **Scientific computing and their applications**
- **Data driven model**
- **Fuzzy inference system**
- **Mathematical biological model**

## VELLORE INSTITUTE OF TECHNOLOGY (VIT)

VIT has made a mark in the field of higher education in India imparting quality education in a multi-cultural ambience, intertwined with extensive application-oriented research. VIT was established with the aim of providing quality higher education at par with institutions of international standards. It persistently seeks and adopts innovative methods to improve the quality of higher education in all fields of science and technology. VIT was established by the well-known educationalist and former parliamentarian, honorable Dr. G. Viswanathan, the Founder and Chancellor, a visionary who transformed VIT into a centre of excellence in higher technical education. VIT is ranked among the top 601-700 universities of the world and one among the top 3 institutions in India (Shangai ARWU Ranking 2022). It is ranked the 8<sup>th</sup> best university and 11<sup>th</sup> best research institution and the 11<sup>th</sup> best engineering institution in India (NIRF ranking, Govt. of India 2023). Engineering and technology subjects areas of VIT are the 240<sup>th</sup> best in the world and 9<sup>th</sup> best in India



# VIT<sup>®</sup>

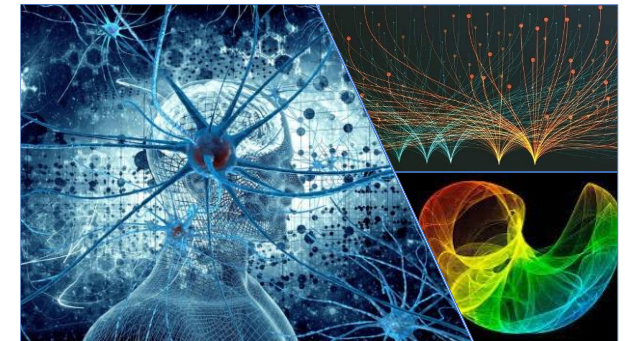
**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)  
CHENNAI

## International Conference on Emerging Frontiers in Nonlinear Complex Systems, Computational Intelligence, and Their Applications

(Hybrid Mode)

7<sup>th</sup> – 9<sup>th</sup>

February 2024



**Organized by**

**Division of Mathematics  
School of Advanced Sciences (SAS)  
Vellore Institute of Technology (VIT)  
Chennai**

Website: <https://icncsvit.in/>

**VIT - A place to learn; A chance to grow**

as per QS university rankings by Subject 2023. It is ranked 163 in QS -- Asia University rankings 2023 and has got A++ in the 4th cycle of NAAC accreditation.

## ABOUT VIT CHENNAI

VIT Chennai is a globally engaged, competitive, comprehensive and research-enriched campus strategically positioned in the capital city of Tamil Nadu, to respond to major industrial, social, economic and environmental demands and challenges. VIT Chennai is ably spearheaded by Vice Presidents Mr. Sankar Viswanathan, Dr. Sekar Viswanathan, Dr. G.V. Selvam, Assistant Vice President Ms. Kadhambari S. Viswanathan Executive Director Dr Sandhya Pentareddy, Vice Chancellor i/c and Pro Vice Chancellor Dr. V.S. Kanchana Bhaaskaran.

They share in the mission to make VIT a global centre. The focus is:

- To maximize the industrial connectivity
- To create centre of excellence in niche areas of research
- To enrich technological and managerial human capital nurtured in a multicultural ambience
- To provide a common platform for the agglomeration of ideas of personnel from various walks of life for learning
- To create opportunities and exploit the available resources to benefit industry/society
- To encourage participation in the national agenda of knowledge building
- To foster international collaborations for mutual benefits in areas of research.

## ABOUT THE SCHOOL

The School of Advanced Sciences (SAS) at VIT includes Divisions of Mathematics, Physics, and Chemistry. It offers Ph.D program in these disciplines. The faculty of the school comprises qualified and goal-oriented members whose research expertise includes major frontier areas in Mathematics, Physics and Chemistry.

## PUBLICATION

The rigorously pre-reviewed conference papers will be recommended for submission in The **European Physical Journal Special Topics (EPJ ST) [SCOPUS, SCI]** which holds an **impact factor 2.8 (2022)** for publication. Authors need to submit the full papers to the journal directly upon the opening of the special issue titled “**Innovations at the Intersection: Complex Systems and Computational Intelligence**” in EPJ ST.

We are presently engaging with additional journals indexed in SCI, SCOPUS, and UGC-CARE for potential inclusion, as well as checking the possibility of publishing as a book series in Springer Proceedings in Mathematics and Statistics. An updated list of these journals will be furnished shortly.

## CALL FOR PAPERS

**Topics chosen could be related to the following topics of interest but not limited to:**

- Nonlinear complex systems
- Nonlinear classical and fractional differential equations and their applications
- Numerical analysis and the development of algorithms for simulation
- Scientific computing and their applications
- Numerical simulation and modeling

- Mathematical methods in artificial intelligence
- Machine and deep learning
- Neural networks
- Intelligent control scheme
- Multi-agent system with deep learning approach
- Computational intelligent models for health care application
- Stability and stabilization issues
- Fuzzy set theory and their applications
- Fractal theory
- Graph theory and their applications
- Discontinuous dynamical systems and control
- Synchronization and chaos problem
- Fluid dynamics and computational fluid dynamics
- Time-delays / uncertainties
- Data-driven dynamical systems

## IMPORTANT DATES

Abstract Submission date : 10/01/2024

Acceptance of Abstract : 12/01/2024

Full paper Submission : 31/01/2024

Registration last date : 07/02/2024

Conference date : 7<sup>th</sup> to 9<sup>th</sup> Feb-2024

## KEYNOTE SPEAKERS

Prof. Jürgen Kurths, Humboldt University, Berlin, Germany

Prof. M. Lakshmanan, Bharathidasan University, India

Prof. Maithili Sharan, IIT Delhi, New Delhi, India

Prof. P. Kandasamy, SERB, Bharathiar University, Coimbatore  
Prof. K. Balachandran, Bharathiyar University, India  
Prof. Kuru Ratnavelu, ICSDI, UCSI University, Malaysia  
Prof. P. Balasubramaniam, The Gandhigram Rural Institute (Deemed to be University), India  
Prof. Chee Peng Lim, IISRI Deakin University, Australia  
Prof. Raju. K. George, IIST, Trivandrum, India  
Prof. Sudeshna Sinha, Indian Institute of Science Education and Research, Mohali, India  
Prof. Fathalla Ali Rihan, UAE University, UAE  
Prof. Mahdi Jalili, STEM College, RMIT University, Australia  
Prof. Malay Banerjee IIT Kanpur, India

### INVITED SPEAKERS

Prof. S. Muralisankar, Madurai Kamaraj University, India  
Dr. Sachinkumar Balasaheb Bhalekar, University of Hyderabad, India  
Dr. R. Rakkiyappan, Bharathiar University, India  
Dr. Pratibhamoy Das, IIT Patna, India  
Dr. P. Muthukumar, The Gandhigram Rural Institute (Deemed to be University), India  
Dr. G. Nagamani, The Gandhigram Rural Institute, (Deemed to be University), India

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Dr. David Raj Micheal	Dr. P T Sowndarrajan
Dr. J. Manimaran	Dr. N. Padmaj

**All faculty members and Research scholars of  
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Technology, Chennai.**