

2023 IEEE Summer School on Computational Intelligence: Theory and Applications

12-14 July 2023

Department of Computer Science, University of Jaffna

The IEEE Computational Intelligence Society Student Branch Chapter of the University of Jaffna (IEEE-CIS-SBC-UoJ) successfully hosted the 2023 IEEE Summer School on Computational Intelligence: Theory and Applications. This significant event took place from 12-14 July 2023 at the Department of Computer Science, University of Jaffna. Notably, the University of Jaffna's IEEE Computational Intelligence Society Student Branch Chapter is the only chapter of its kind in Sri Lanka. To the best of our knowledge, this marks the inaugural summer school organized by the University of Jaffna and is also the first summer school on computational intelligence conducted by any higher education institution in Sri Lanka.

The IEEE-CIS-SBC-UoJ received a competitive grant worth USD 3,900 (\approx LKR 1.2 million) from IEEE to conduct the summer school. Remarkably, only nine proposals worldwide were selected to host IEEE CIS Summer Schools. Prof. A. Ramanan played a crucial role as the Advisor of the IEEE-CIS-SBC-UoJ. He was instrumental in preparing and submitting the grant proposal to IEEE and additionally served as the General Chair for the 2023 IEEE Summer School on Computational Intelligence.

The summer school featured a well-thought-out programme dedicated to a specific theme each day. Day 1 focused on Artificial Intelligence, Machine Learning, and Deep Learning, providing participants with a strong foundational understanding of these cutting-edge technologies. Day 2 delved into the intricacies of Natural Language Processing, highlighting the significance of language in intelligent systems. Finally, Day 3 explored the domains of IoT and Robotics, showcasing how intelligent systems interact with the physical world. This carefully curated programme promised to offer both theoretical foundations and real-world applications, complemented by hands-on training for an enriched learning experience.

The occasion gathered an outstanding assembly of speakers hailing from esteemed institutions across the globe, such as the University of Melbourne, Australia; Imperial College London, UK; and the University of Southampton, UK. Moreover, three distinguished speakers from other state universities in Sri Lanka, such as the University of Moratuwa and the University of Peradeniya, participated in the programme. In addition to the external experts, the faculty from the University of Jaffna, consisting of six esteemed speakers, shared their invaluable insights and experiences. Furthermore, six speakers from leading software industries, including 99x, H2O.ai, and SenzAgro Solutions, conducted hands-on training sessions on computational intelligence in the Department of Computer Science's laboratory.

The summer school saw enthusiastic participation from 81 students representing a diverse range of institutions, including SLIIT, the University of Peradeniya, the Eastern University Sri Lanka, the University of Ruhuna, the University of Vavuniya, the University College of Jaffna, and the University of Jaffna itself. Faculty members from the Department of Computer Science and the Faculty of Engineering at this university actively participated in the teaching-learning process of the summer school. Overall, the summer school witnessed a total of 104 participants.

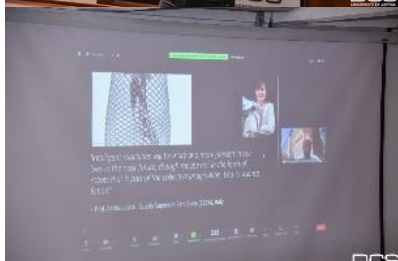
The opening ceremony of this milestone event was graced by the presence of the respected Vice Chancellor, Prof. S. Srisatkunarajah, and the Dean of the Faculty of Science, Senior Prof. P. Ravirajan, whose support and approval were instrumental in making the summer school possible. In addition to the talks and hands-on training sessions, nearly 100 participants relished the enjoyable social gatherings arranged by the students of the University of Jaffna. The banquet dinner, held on the second day of summer school at Valampuri Hotel, provided a delightful experience for all attendees.

The organizing committee and volunteers were deeply praised for their unwavering dedication and unwavering commitment, which were instrumental in the successful execution of this exceptional summer school. Their tireless endeavors ensured the event's resounding success. Furthermore, we extend our heartfelt gratitude to our long-standing supporter, WSO2 Inc., and our newly partnered sponsor, Treats: Bakery & Café, whose generous sponsorship greatly contributed to the event's triumph. Moreover, we are immensely grateful to the Department of Computer Science for providing the essential space, necessary equipment, and manpower to successfully organise this summer school. Their support has been invaluable.









Programme Schedule

Day 1: Artificial Intelligence, Machine Learning, and Deep Learning	
08:00 – 08:30	Registration
08:30 – 08:35	Welcome Address Prof. A. Ramanan, <i>General Chair – Aignite’23</i>
08:35 – 08:40	Video Montage - IEEE Student Branch of the University of Jaffna
08:40 – 08:50	Chief Guest’s Address Prof. S. Srisatkunarajah, <i>Vice-Chancellor – University of Jaffna</i>
08:50 – 09:00	Special Guest’s Address Prof. P. Ravirajan, <i>Dean – Faculty of Science, University of Jaffna</i>
09:00 – 10:00	Fairness in AI: AI for Disadvantaged Communities Prof. Saman Halgamuge, Dr. Maneesha Perera, and Dr. Rajith Vidanaarachchi, <i>University of Melbourne, Australia</i>
10:00 - 10:30	Tea Break
10:30 - 11:30	Introduction to Machine Learning & Deep Learning Prof. M. Siyamalan, <i>University of Jaffna</i>
11:30 - 13:00	Hands on Training: Developing ML/DL Models Prof. M. Siyamalan, <i>University of Jaffna</i>
13:00 - 14:00	Lunch
14:00 - 15:00	Hands on Training: Developing ML/DL Models Prof. M. Siyamalan, <i>University of Jaffna</i>
15:00 - 16:00	Practicing Artificial Intelligence in Finance Dr. Subha Fernando, <i>University of Moratuwa</i>
16:00 - 16:30	Tea Break
16:30 - 18:00	Preparing for the Future of Work: Navigating GPT and Automation in Industrial Professions Mr. Samudra Kanankearachchi, <i>99x</i>

Day 2: Natural Language Processing	
8:00 - 9:00	Building Computational Resources for Sri Lankan National Languages Prof. Gihan Dias, <i>University of Moratuwa</i>
9:00 - 10:00	An Overview of Natural Language Processing Dr. K. Sarveswaran, <i>University of Jaffna</i>
10:00 - 10:30	Tea Break
10:30 - 13:00	Hands-on Training: Developing Language Tools & Models Dr. E.Y.A Charles & Dr. K. Sarveswaran, <i>University of Jaffna</i>
13:00 - 14:00	Lunch & Group Photo
14:00 - 16:00	Hands-on Training: Democratizing LLMs with h2oGPT and H2O LLM Studio Mr. Sanjeevan Sivapiran & Mr. Praveen Sivakumar, <i>H2O.ai</i>
	Hands-on Training: Dive into Automatic Machine Learning with H2O AutoML Mr. Mathanraj Sharma, <i>H2O.ai</i>
16:00 - 16:30	Tea Break
16:30 - 17:30	Open Issues in Audio AI Privacy and Security Prof. Jennifer Williams, <i>University of Southampton, UK</i>
18:30 – 20:30	Banquette Dinner with Cultural Events Valampuri Hotel

Day 3: Internet of Things and Robotics	
8:00 - 9:00	Emerging Trends in IoT Prof. Roshan Ragel, <i>University of Peradeniya</i>
9:00 - 10:00	Hands-on Training : IoT Dr. A. Kaneeswaran, Mr. R. Valluan & Mr. S. Suthakar, <i>University of Jaffna</i>
10:00 - 10:30	Tea Break
11:00 - 13:30	Hands-on Training: IoT Dr. A. Kaneeswaran, Mr. R. Valluan & Mr. S. Suthakar, <i>University of Jaffna</i>
13:30 - 14:30	Lunch
14:30 - 16:00	Industrial Norm on IoT and its Advancement in Healthcare, Agriculture and Manufacturing Ecosystems Mr. R. Miller & Mr. B. Arunn, <i>SenzAgro Solution</i>
16:00 - 17:00	Introduction to Robotics Prof. Thrishantha Nanayakkara, <i>Imperial College London, UK</i>
17:00 – 17:20	Tea Break
17:20 - 17:30	Vote of Thanks Ms. Mohan Sankavi, <i>Secretary of the IEEE-CIS-SBC-UoJ</i>

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24 July 2023

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