



SECOND INTERNATIONAL CONFERENCE ON FOSS APPROACHES TOWARDS COMPUTATIONAL INTELLIGENCE AND LANGUAGE TECHNOLOGY, FOSSCILT-24

On March 21st, 2024, the International Centre for Free and Open Source Solutions (ICFOSS) proudly inaugurated the Second International Conference on FOSS Approaches towards Computational Intelligence and Language Technology (FOSSCILT-24) with a ceremonious opening session attended by esteemed guests, Dr. Anoop Ambika (Chief Executive Officer of Kerala Startup Mission), Dr. Sunil T. T (Director of ICFOSS), Ms. Chitra M. S (Secretary & Registrar, ICFOSS) and Dr. Rajeev R. R (Programme Head of e-Governance, ICFOSS).

The event commenced with a warm welcome address by Dr. Rajeev R. R, followed by an insightful overview of the program. Dr. Anoop Ambika delivered an inspiring and thought-provoking inaugural address, formally inaugurated the session. This was succeeded by the presidential address delivered by Dr. Sunil T. T (Director, ICFOSS). The felicitation was gracefully delivered by Ms. Chithra M. S (Secretary and Registrar at ICFOSS).

The keynote speech was elegantly delivered by Mr. Muthumanickavel Swaminathan (Lead Data Scientist at Cognizant, United Kingdom) who inspired and captivated the audience with his words. Ms. Hasiya Noohu (Programme Coordinator, ICFOSS) offered a heartfelt vote of thanks to all those who contributed to making the event a memorable one.

The technical session, led by Mr. Muthumanickavel Swaminathan, proved to be informative and engaging. The paper, short paper, and poster presentations in the afternoon were executed flawlessly.

The conference provided a platform for students, researchers, engineers, and practitioners interested in various aspects of Language Technologies & linguistics, Speech Analysis, information retrieval and Data Analytics to share their insights and expertise. A total 81 numbers of participants attended the event.



DAY 1 – 21 MARCH 2024

The first session of the day, held from 11:00 AM to 12:00 PM, focused on the topic ***“The Language revolution: Unravelling wonders of the Large Language Models”***, was conducted by Mr. Muthumanikavel Swaminathan, Lead Data Scientist at Cognizant. With over two decades of unparalleled experience in the IT industrial sector and a decade-long dedication to data analytics and Data Science, Mr. Muthumanikavel stands as a beacon of expertise and leadership.

The subsequent session, held from 12:10 PM to 1:00 PM, was led by Gerard Crispie, Data Science Guild Master at Cognizant, United Kingdom on the topic ***“Data Science Cross Industry case studies”***.

Followed, an online session featured an invited talk by Dr. Haripriya Harikumar, Associate Research Fellow from the Applied Artificial Intelligence Institute at Deakin University, Australia.

The presentation sessions were divided into different tracks, each ran simultaneously from 1:30 PM to 4:15 PM. These tracks were conducted in Seminar Hall, Lecture Hall 1, and Lecture Hall 2, respectively.



Track 1 focused on Language Technology & Linguistics, with 8 papers presented, 3 of which were online. The evaluation of these papers was conducted by Dr. Premjith.B, Assistant Professor at the Center for Computational Engineering and Networking, Amrita Vishwa Vidhyapeedam, and Dr. Balasubramaniyam, Assistant Professor in the School of Computer Science and Engineering (SoCSE).

TRACK 1- Language Technology & Linguistics

On the first day, the presentations commenced at 2:00 PM in the Seminar Hall, where a total of 8 papers were presented, with 3 delivered online. The evaluations of these presentations were conducted by Dr. Premjith B, Assistant Professor at the Center for Computational Engineering and Networking (CEN), Amrita Vishwa Vidya Peetham, and Dr. Balasubramanian, Assistant Professor at DUK. Following are the papers :

1. Dr. Nisha Varghese presented a paper online on the theme ***“Domain-Specific Token Recognition using Bidirectional encoder representations from Transformers and SciBERT”*** co-authored by Shafi Shereef.

2. Mr. Amandeep Kaur Gahier presented a paper online on the theme ***“Cross Domain Recommender System using Deep Learning–A Proposal”*** co-authored by Supreet Kaur Gujra.
3. Mr. Saikat Mondal presented a paper online on the theme ***“Multi-Channel Stacked TextCNN (MCSTCNN): A Robust Framework For Improving Biomedical Multilabel Text Classification”***.
4. Mr. Akshay S presented a paper on the theme ***“Comparison of Explainability of Machine Learning Based Malayalam Text Classification”***.
5. Mr. Arfana V.V presented a paper on the theme ***“Aspect-Based Sentiment Analysis for Enhancing Customer Satisfaction”***.
6. Ms. Jisha P Jayan presented a paper on the theme ***“Extraction of Textual Data from Unstructured Malayalam Web Resources”***.
7. Ms. Liji S K presented a paper on the theme ***“BioQA-BERT: A Hybrid Large Language Model for Interactive Malayalam Question Answering System on Health Domain”***.
8. Ms. Sruthi Sara Moses presented a paper on the theme ***“Transfer Grammar Rules For Malayalam Verbs”***.



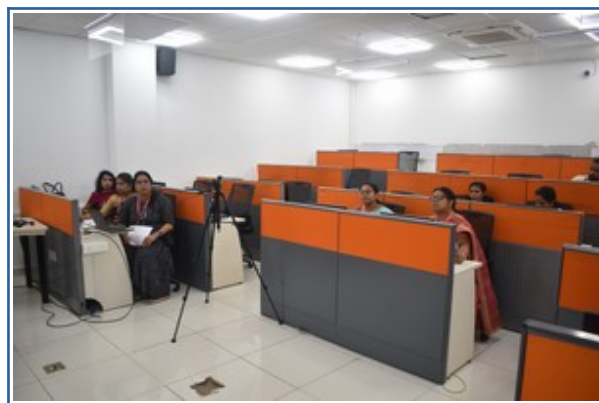
TRACK 3 : Speech Analysis

Presentations started in Lecture Hall from 1:00 at 1.30 pm. A total of 5 papers were presented, with 2 delivered online. The evaluation of these papers were done by Dr. Elizabeth Sherly and Ms. Leena G Pillai. The papers presented are as follows:

1. Mr. Bharat Gupta presented a paper on the theme ***“Emotion Recognition through Deep Learning in various modes”***.
2. Mr. Tushar Gandhi presented a paper online on the theme ***“Speech-Based Query Search For Sanskrit E-Resources In Digital Libraries”***.
3. Ms. Manju G presented a paper on the theme ***“Comparative Study On Different Architectures Used For The Automatic Speech Recognition of Malayalam- A Low Resource Language”***.

TRACK 4 : Information Retrieval and Data Analytics

1. Ms. Bhuvaneswari Panneerselvam presented a paper on the theme ***“Top-N Feature Selection Methods for Designing Food Recommender Systems”***.
2. The paper ***“Crop Yield Prediction Using Stacked Regression Techniques”*** presented by Ms. Deepthy P S.

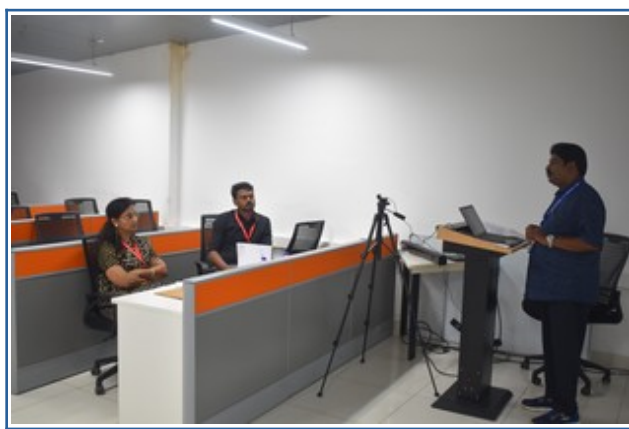


TRACK 5- e-Governance

The presentations started at 1.30 pm in Lecturer Hall 2. There were total of 5 presentations out of which one was online. The presentations were evaluated by Mr Sanob Meherban Sakhaf, KAS and Ms Rejeetha S, Deputy Director(e-Gov) and IT, Dept of Diary Development. The papers were :

1. The paper on the theme ***“An AI-Powered Personal Finance Assistant: Enhancing Financial Literacy and Management”***, presented online by Mr. Visesh agarwal.
2. The paper on the theme ***“Digital Marketplaces in Green Energy Governance:The "BuyMySun" Model”***, was presented by Mr. Jayakumar R.
3. The paper on the theme ***“Electronic initiatives and service Quality transition in the Public Distribution System: Perception and Practice of the Fair Price Shop owners in Manjeshwar Taluk, Kasaragod District, Kerala”***, presented by Mr. Madhusoodhana S.
4. The paper on the theme ***“Digital Empowerment of Self-Help Groups: The Role of ICT in Microfinance Transformation”***, presented by Mr. Manoj K.
5. The paper on the theme ***“Kerala's KFON Initiative: A Leap in Digital Inclusivity”***, was presented by Mr. Binukumar N S.

The presentations were concluded at 3.30 pm.



TRACK 7- POSTERS



International Centre for Free and Open Source Software, Swatantra, Ground Floor,
South Pavilion, Sports Hub, Kariyavattom, Thiruvananthapuram – 695581

The poster presentations started from 2:00 pm. There were a total of 7 posters and was evaluated by Dr. Vinod Chandra S S, Dept of Computer Science, University of Kerala & Dr Manu Madhavan, Assistant Professor, IIIT Kottayam. Following are the posters presented :

1. The poster ***“Intrusion Detection in IoT systems ML Algorithms”*** presented by Ms. Parvathi A.
2. The poster ***“Analysing the relation between Temperature-Aerosol-Radiative forces using Regression models”*** presented by Ms. Sana S Navas.
3. The poster ***“Improving Legal Text Classification Performance using Open-Source Large Language Model Augmentation”***, presented by Ms. Prasanna P.
4. The poster ***“Unveiling Legal AI: Exploring XAI Techniques with Domain-Specific Transformer Model”***, presented by Mr. Aditya K.



Presentations were concluded at 4.15 pm. After that there was an invited talk by Dr. Haripriya Harikumar on the topic ***“Exploring Backdoor Attacks, Defense Strategies, and a Path to Good”***. She is an Associate Research Fellow at Applied Artificial Intelligence Institute, Deakin University,

Australia. Her works reflects a deep commitment to advancing the frontiers of AI, making her a valuable asset to the global AI community.

After the invited talk, an iftar party commenced at 6.30 pm followed by cultural events. Day 1 is concluded at 8 pm.

DAY 2 – 22 MARCH 2024

The second day of the FOSSCIL-T24 session commenced at 10:00 am with an invited talk on **“Natural Language Processing :Recent Trends and Research Avenues”** by Dr. Premjith B from the Centre for Computational Engineering and Networking (CEN) at Amrita Viswa Vidhyapeetham, Coimbatore. The talk concluded with a 15-minute tea break. After the break, the session resumed with another invited talk on **“Change is inevitable, Growth is Optional”** by Ms. Geetha Paulmani, Founder of Vishwa Vidhya IT & Business Consulting Firm, based in Tamil Nadu.



At 12.15 pm, there was a virtual session by Mr. Ignacio Ordovas Pascual and Mr. Miguel Torres Porta, Data Scientists, Cognizant United Kingdom on the topic **“Enhancing LLMs Proficiency in Specialized mathematical operations”**. The talk was concluded at 1:00 pm.

Session

In parallel with the invited talk, paper presentations were started at 11.30 pm in Lecturer Hall 2. There were 5 papers and 3 short papers out of which 3 papers were presented online. The presentations were evaluated by Dr. Vinod Chandra S.S and Dr Jesna Mohan.

The following papers are presented in Track 2 :

TRACK 2 : Image Processing

1. Ms. Nancy Hada virtually presented a paper on the theme **“FolkTalent: Enhancing Classification and Tagging of Indian Folk Paintings”**.

2. Mr. Nischay Gupta virtually presented a paper on the theme *“Empirical analysis of image compression in Conditional Generative Adversarial Networks based on Lossy and Lossless compression”*.
3. Ms Saleena T.S virtually presented a paper on the theme *“Semantic Segmentation of Necrotic Tissues in Histopathology Images using Autoencoder”*.
4. Mr. Jestin Joy presented a paper on the theme *“Towards a Flexible and Cost-Effective System for Dynamic Gesture Prediction in Indian Sign Language”*.
5. Ms Ruksana R presented a paper on the theme *“Video Extraction Using Keyword- A Hybrid Approach”*.

TRACK 6- Short Papers

1. Ms Anupama D Sakhare virtually presented a short paper on the theme *“Detecting Name Sense Relationship”*.
2. Mr. Manu Shankar virtually presented a short paper on the theme *“Envisioning the Future: Proposing an Advanced OCR System for Ancient Malayalam Manuscripts”*.
3. Ms Daphna Chacko presented a short paper on the theme *“A peep into English-Malayalam Machine Translation”*. The presentations were concluded at 1.40 pm.

After lunch, Panel Discussion started from 2 .00 pm to 3.00 pm.

Panel Discussion

Moderator : Dr. Jayashankar Prasad, Director DCSMAT, Thiruvananthapuram

Panelists : Mr. Muthumanickavel Swaminathan, Lead Data Scientist, Cognizant, United Kingdom.
 : Dr. Brijesh Madhavan, CEO ,Curbelogs Advanced Technology Solutions PVT Ltd.
 : Ms. Geetha Paulmani, Founder of Vishwa Vidhya IT & Business Consulting Firm, TN.
 : Mr. Niyas Mohammed, Co-founder of NeuralCraft.

In a riveting display of expertise, the panel discussion on 'AI-based entrepreneurship' was skillfully helmed by **Dr. Jayashankar Prasad C**, the erudite Director of DCSMAT; Mr. Muthumanickavel Swaminathan, the insightful Lead Data Scientist at Cognizant, United Kingdom; Dr. Brijesh Madhavan, the accomplished CEO of Curbelogs Advanced Technology Solutions Pvt Ltd; Ms. Geetha Paulmani, the distinguished Founder of Vishwa Vidhya IT & Business Consulting Firm; and Mr. Niyas Mohammed, the enterprising Co-founder of NeuralCraft. Their adept leadership fostered an engaging atmosphere, fostering dynamic exchanges and fostering insightful dialogues.



Awards for the Best Papers and Posters

The best paper award (Academic & Student Category) was won by Mr. Madhusoodhana S & Ms. Nancy Hada, who have presented papers entitled *“Electronic initiatives and service Quality transition in the Public Distribution System: Perception and Practice of the Fair Price Shop owners in Manjeshwar Taluk, Kasaragod District, Kerala”* & *“FolkTalent: Enhancing Classification and Tagging of Indian Folk Paintings”*, while the best poster was awarded to Mr. Prasanna P for the poster titled *“Improving Legal Text Classification Performance using Open-Source Large Language Model Augmentation”*.

Best Academic Paper



Best Student Paper



Best Poster



Valedictory Function:

The culmination of the day was a profound and inspiring valedictory function, graced by the esteemed presence of Dr. Sabareesh K, and the revered Dr. Sunil T. T., Director of ICFOSS. Their leadership and guidance lent a significant weight to the occasion, signifying the conclusion of days filled with profound learning and meaningful exchanges. It was a momentous occasion, symbolizing the collective achievements and the enduring impact of the event.

