CYBER GAZETTE

NEWS LETTER

APRIL 2025

**DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING
(CYBER SECURITY)**

School of Engineering

DAYANANDA SAGAR UNIVERSITY

**MAIN CAMPUS,
HAROHALLI, KANAKAPURA - 562112**

DEPARTMENT ACCOMPLISHMENTS

session on "Innovation Lab Setup and CoE Design in the Cybersecurity Domain"

16.04.2025

AMr. Teja Chintalapati, Senior Program Manager, Semiconductor Security Division, Data Security Council of India (DSCI), New Delhi, visited School of Engineering, DSU to deliver a thought-provoking session on "Innovation Lab Setup and CoE Design in the Cybersecurity Domain" on 16.04.2025.

He shared key insights into establishing state-of-the-art innovation labs and Centers of Excellence (CoEs) tailored for cybersecurity research and development. He emphasized the strategic role such initiatives play in strengthening India's cybersecurity ecosystem and fostering industry-academic collaboration.This served as a valuable platform for knowledge exchange and future collaborations in the rapidly evolving field of cybersecurity.

Ramanagara, Karnataka, India
Dayananda Sagara Mdc, Karnataka 562112, India, Ramanagara, Karnataka 562112, India
Lat 12.66192° Long 77.450727°
16/04/2025 12:45 PM GMT +05:30

FACULTY ACCOMPLISHMENTS

Faculty Training Session on " Software Engineering Using LLM's- Developing a Forecasting Solution"

12.03.2025

Dr. Durbadal Chattaraj has successfully participated in the Faculty Training Session on " Software Engineering Using LLM's- Developing a Forecasting Solution" conducted on 12th March 2025 at Dayananda Sagar University. This session was facilitated by Dr. J.B. Simha, CTO, Abiba Systems, Bengaluru, and focused on the transformative applications of Large Language Models (LLM'S) in Software engineering and forecasting solutions.

FACULTY ACCOMPLISHMENTS

Faculty Training Session on " Software Engineering Using LLM's- Developing a Forecasting Solution"

12.03.2025

Dr.D.Sumathi has successfully participated in the Faculty Training Session on " Software Engineering Using LLM's- Developing a Forecasting Solution" conducted on 12th March 2025 at Dayananda Sagar University. This session was facilitated by Dr. J.B. Simha, CTO, Abiba Systems, Bengaluru, and focused on the transformative applications of Large Language Models (LLM'S) in Software engineering and forecasting solutions.

FACULTY ACCOMPLISHMENTS

6th Doctoral Symposium on Computational Intelligence (DoSCI-2025)

28th-29th March 2025

Dr.Dilip Kumar Jang Bahadur Saini has participated in the 6th Doctoral Symposium on Computational Intelligence (DoSCI-2025) as a SESSION CHAIR organized jointly by Institute of Engineering and Technology Lucknow, Campus of Open Learning, University of Delhi, Shaheed Rajguru College of Applied Sciences for Women, University of Delhi and University of Calabria, Italy, on 28th-29th March 2025.

FACULTY ACCOMPLISHMENTS

Journal of Experimental Agriculture International.

07.03.2025

Dr. Dilip Kumar Jang Bahadur Saini, has been awarded the Certificate of Excellence in Reviewing by the Journal of Experimental Agriculture International.

Date: 07.03.2025

Validation Link: https://reviewer.reviewerhub.org/

Username:DILIPSAINIGMAIL.COM
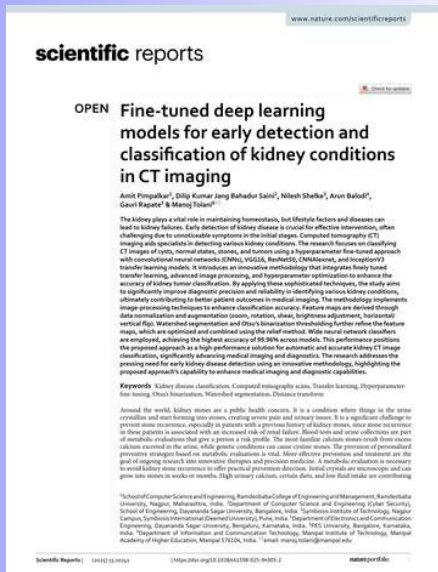**Password:dzUkQ8KBBKAx**

FACULTY ACCOMPLISHMENTS

Fine-tuned Deep Learning Models for Early Detection and Classification of Kidney Conditions in CT Imaging

28.03.2025

Dr. Dilip Kumar Jang Bahadur Saini has published a significant open-access research article titled "Fine-tuned Deep Learning Models for Early Detection and Classification of Kidney Conditions in CT Imaging". The article was published on 28th March 2025 in the prestigious journal Scientific Reports (Nature Portfolio), highlighting a pioneering approach to utilizing deep learning for enhancing diagnostic accuracy in kidney-related conditions through CT imaging.

scientific reports

OPEN **Fine-tuned deep learning models for early detection and classification of kidney conditions in CT imaging**

Amit Pimpalkar[1], Dilip Kumar Jang Bahadur Saini[2], Nilesh Shelke[3], Arun Balodi[4], Gauri Rapate[5] & Manoj Tolani[6]

The kidney plays a vital role in maintaining homeostasis, but lifestyle factors and diseases can lead to kidney failures. Early detection of kidney disease is crucial for effective intervention, often challenging due to unnoticeable symptoms in the initial stages. Computed tomography (CT) imaging aids specialists in detecting various kidney conditions. The research focuses on classifying CT images of cysts, normal states, stones, and tumors using a hyperparameter fine-tuned approach with convolutional neural networks (CNNs), VGG16, ResNet50, CNNAlexnet, and InceptionV3 transfer learning models. It introduces an innovative methodology that integrates finely tuned transfer learning, advanced image processing, and hyperparameter optimization to enhance the accuracy of kidney tumor classification. By applying these sophisticated techniques, the study aims to significantly improve diagnostic precision and reliability in identifying various kidney conditions, ultimately contributing to better patient outcomes in medical imaging. The methodology implements image-processing techniques to enhance classification accuracy. Feature maps are derived through data normalization and augmentation (zoom, rotation, shear, brightness adjustment, horizontal vertical flip). Watershed segmentation and Otsu's binarization thresholding further refine the feature maps, which are optimized and combined using the relief method. Wide neural network classifiers are employed, achieving the highest accuracy of 99.96% across models. This performance positions the proposed approach as a high-performance solution for automatic and accurate kidney CT image classification, significantly advancing medical imaging and diagnostics. The research addresses the pressing need for early kidney disease detection using an innovative methodology, highlighting the proposed approach's capability to enhance medical imaging and diagnostic capabilities.

Keywords Kidney disease classification, Computed tomography scans, Transfer learning, Hyperparameter fine-tuning, Otsu's binarization, Watershed segmentation, Distance transform

Around the world, kidney stones are a public health concern. It is a condition where things in the urine crystallize and start forming into stones, creating severe pain and urinary issues. It is a significant challenge to prevent stone recurrence, especially in patients with a previous history of kidney stones, since stone recurrence in these patients is associated with an increased risk of renal failure. Blood tests and urine collections are part of metabolic evaluations that give a person a risk profile. The most familiar calcium stones result from excess calcium excreted in the urine, while genetic conditions can cause cystine stones. The provision of personalized preventive strategies based on metabolic evaluations is vital. More effective prevention and treatment are the goal of ongoing research into innovative therapies and precision medicine. A metabolic evaluation is necessary to avoid kidney stone recurrence to offer practical prevention direction. Initial crystals are microscopic and can grow into stones in weeks or months. High urinary calcium, certain diets, and low fluid intake are contributing

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FACULTY ACCOMPLISHMENTS

NPTEL course

Jan-March 2025

Prof.V.Vinitha has successfully completed an 8 Week NPTEL course titled "Cloud Computing and Distributed systems" during Jan-March 2025.

FACULTY ACCOMPLISHMENTS

IEEE International Conference on High Performance Computing, Data, and Analytics Workshops, HiPCW.

Dr.Durbadal Chattaraj along with students Mr.Srihari K B(ENG21CY0043) and Mr.Bansidharee Maji(ENG22CY0006) Published an IEEE conference paper titled "Performance Enhancement of Cyber Range through HPC: Issues and Challenges" in Proceedings of the IEEE International Conference on High Performance Computing, Data, and Analytics Workshops, HiPCW.

This research explores critical challenges and potential solutions in leveraging High Performance Computing (HPC) to enhance the capabilities and performance of cyber ranges — virtual environments used for cybersecurity training and testing. The paper provides valuable insights into integrating HPC to simulate complex attack scenarios and optimize training environments.

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FACULTY ACCOMPLISHMENTS

IEEE International Conference on High Performance Computing, Data, and Analytics Workshops, HiPCW.

Dr.Durbadal Chattaraj along with students Mr.Srihari K B(ENG21CY0043) and Mr.Bansidharee Maji(ENG22CY0006) Published an IEEE conference paper titled "Utilization of HPC for Designing Modern Cryptographic Protocols: Analysis and Observation" in Proceedings of the IEEE International Conference on High Performance Computing, Data, and Analytics Workshops, HiPCW.

This conference served as a platform for leading researchers and practitioners to discuss advancements and challenges in high-performance computing, data analytics, and their applications.

Conference: IEEE HiPC Workshops 2024
ISSN: 2770-0151
DOI: 10.1109/HiPCW63042.2024.00078

FACULTY ACCOMPLISHMENTS

Gender Classification Based on Machine Learning Models.

9–11 April 2025

Dr. Mubeen Ahmed Khan was honored with a Certificate of Presentation at the 2025 4th OPJU International Technology Conference (OTCON 4.0) for the research titled "Gender Classification Based on Machine Learning Models." Held from 9–11 April 2025 at O. P. Jindal University, Raigarh, India, the conference focused on Smart Computing for Innovation & Advancement in Industry 5.0.

FACULTY ACCOMPLISHMENTS

Post Quantum Cryptography

17th April 2025

Dr.Devi Priya V S has served as a resource person for the session on "Post Quantum Cryptography" as part of the World Quantum Day celebrations on 17th April 2025, organised by Thakur college of engineering and technology, Mumbai.

FACULTY ACCOMPLISHMENTS

2025 4ᵗʰ OPJU International Technolgy Conference on Smart Computing for Innovation and Advancement in Industry 5.0

April 9-11,2025.

Dr. Mubeen Ahmed Khan has served as a reviewer of the 2025 4ᵗʰ OPJU International Technolgy Conference on Smart Computing for Innovation and Advancement in Industry 5.0 held at O.P.Jindal University,Raigarh,Chhattisgarh,India from April 9-11,2025.

STUDENT ACCOMPLISHMENTS

1.Ms.R.K.Sowri Priya(ENG23CY0034) has participated in the Robo Quiz Competition conducted by the IEEE Robotics and Automation Society in collaboration with Computational Intelligence Society at Dayananda Sagar University on 07.04.2025.

2. Mr.Prajwal N Halvi(ENG22CY0037) has successfully completed the course titled "Tutedude Ethical Hacking" on 19.04.2025.