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DATA CHRONICLE

OFFICIAL NEWSLETTER

DATA SCIENCE AND BUSINESS SYSTEMS

SCHOOL OF COMPUTING
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
KATTANKULATHUR

Generative AI Special

SRM INSTITUTE OF SCIENCE & TECHNOLOGY
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SCHOOL OF COMPUTING

DATA SCIENCE AND BUSINESS SYSTEMS · SCO-SRMIST ·

SRM INSTITUTE OF SCIENCE & TECHNOLOGY
Data Chronicle
School of Computing

EDITORIAL MESSAGE

Dear Suitors,

Though the roads we want to travel are rougher and long, our Journey continues! We faced lot of struggles and worked hard to achieve what we became today. The Department of Data Science and business Systems strives stiff to reach the destination of Success. Let us see What Data Science is and what it is not? Out of 195 countries in the world, as the total comprises 193 countries that are member states of the United Nations and 2 countries that are non-member observer states: the Holy See and the State of Palestine, and as world's population has just crossed 8 billion and also we celebrated the birth of 8 billionth baby Vincie at Philippines.

Considering the abundance of data at our fingertips, it's important to comprehend, watch over, and occasionally filter it using or developing algorithms. It's important to focus on ways that data science applications can be used throughout different organizations to lower expenses, increase effectiveness, and provide enhanced customer service as we develop the academic challenges of the current decade. Low-latency applications such as augmented reality, virtual reality, and autonomous vehicles are also our concentrated thirst topics we focus upon. These applications require quick processing and decision-making, which can be achieved by using edge computing resources closer to the source of data.

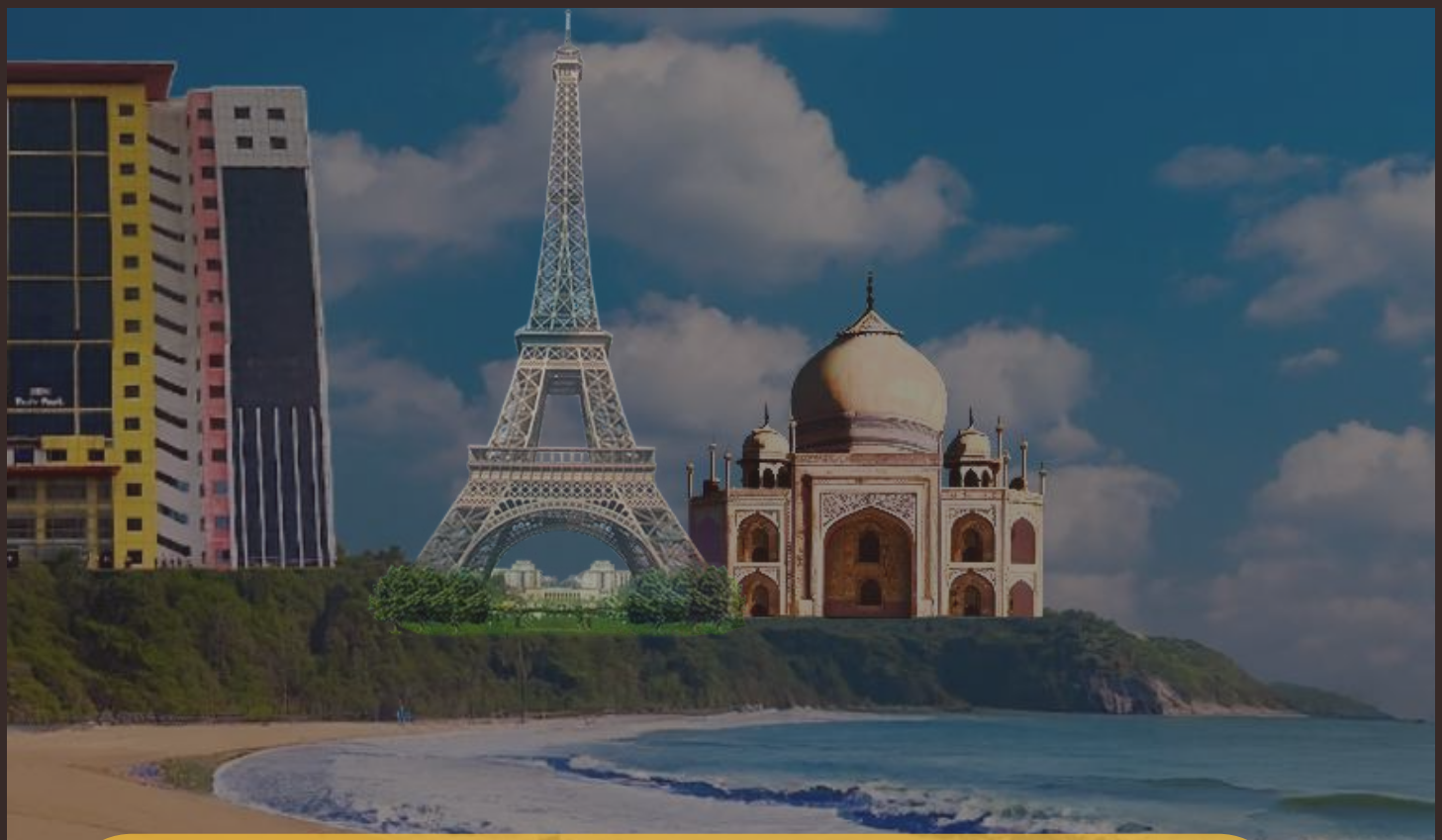
Lot of paper publications, Research Funding, Student and societal programs, Patent Granting had happened in the Department. Using GPT-4, and its predecessors, we were also fed massive amounts of text and code and trained to use the statistical patterns in corpus to predict the words that should be generated in reply to a piece of text input with large language models-the LLMs. With the consideration of the Microsoft Researcher Bubeck, we try our best to the creation of AGI –by not just make statistically plausible guesses, but also trying to create the cognitive pattern with Artificial General Intelligence.

Life is like a road. Not like German autobahns, or the ones made by the Ancient Romans, though. Those are much too straight and smooth. Nope, the road of life is more like a rickety old wagon trail making its way up a mountain. It can be tumultuous. But it's always taking you somewhere. Have you arrived at a crossroads in your life? Or you're going through a rough patch? Don't panic. You are the one, who is going to create the world's greatest AI Brains!! Have a little watch on Brane Brown!!!

"Vulnerability is the birthplace of innovation, creativity and change." – Brane Brown
Will meet you in the Next Edition. Stay Tuned!

B.Amutha
SCO-Newsletter – Head

Compendium



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This image was generated by Adope Express Generative AI

"Kaval karangal Mobile Application "

The Kaval Karangal project aims to revolutionize the way the Kaval Karangal Department of Greater Chennai Police to handle their tasks of humanitarian heroism – rescue and rehabilitation. Currently, these valiant efforts are coordinated through the popular messaging service, WhatsApp.

The **Students of DSBS under the mentorship of Prof. M.Lakshmi** developed an informative and interactive website that will serve as an advanced communication platform, replacing the current reliance on WhatsApp.

- Enhanced Coordination: The new website will enable seamless communication and coordination among Kaval Karangal personnel during rescue operations.
- Scalability: As the number of people requiring assistance increases, the website's scalable nature ensures that it can handle the growing demands without compromising on performance.
- Centralized Information Hub: The website will serve as a centralized repository for data related to rescue operations enabling easy access to critical information when needed.
- User-Friendly Interface: With a carefully designed user interface, the platform will be intuitive and easy to use.
- Data Security: Security measures will be implemented to protect sensitive information, ensuring the privacy and safety of both the Kaval Karangal team and the beneficiaries they serve.

The Kaval Karangal Team

- Piyush Gopal
- Rudransh Pandey
- Ananthakrishnan Ramachandran
- Prateek Pandey
- Akshat Singh
- Soyam Agarwal
- Divya Singh

What is Generative AI? It is a type of artificial intelligence technology that can produce various types of content, including text, imagery, audio and synthetic data.

Data Science Project Expo' 2023

Theme : Data Science Applications in different domains

DSBS Data Science Club organized the first track of Project expo with the theme of "Data Science Applications in Different Domains". Students learning Big data analytics, Data Science and Computer science with business systems are invited to present demonstrable projects in this expo. Innovation and usefulness were judged by the experts.

Dr. Vadivu G, Professor & Program Head Department of Data Science and Business Systems, SCO, SRMIST is the convenor of this event. Around 65 student teams participated in this event. This event was organized to bring out the hidden talent in student and cultivate the research interest with in and across domain, to motivate them to join hands with other domain students to bring out new ideas.

The juries were able to test the talent, knowledge level, understanding and coordination of the teams presenting the work. The juries provided them with suggestions and pointed out the areas of improvement as well. Along with the teams registered for the events, the of students who are worrking in collaboration with TAIWAN SRM Big Data Living lab also got an opportunity to present their ideas.

Early Days (1950s-1980s): The birth of AI and early research in rule-based systems, paving the way for the concept of generative AI models.

Data Science Project Expo' 2023

Theme : Data Science Applications in different domains

Breakthroughs in GANs: Researchers may have achieved significant breakthroughs in Generative Adversarial Networks (GANs), leading to more stable training, improved generation quality, and faster convergence.

FDP on 21CSS303T Data Science

Training the Non-CSE Teachers

Data Science and Business systems organized one week Faculty development program on 21CSS303T Data science to teachers belonging to core engineering departments. This subject is introduced to all students in learning engineering in our university following the 21 regulations. This subject is taught as an Engineering Science with an objective to equip our students with the mandatory basic Data Science skills. More than 40 Faculty members registered and attended the FDP.

The following topics were handled by the Faculty of DSBS:

- Introduction to Data Science – Dr. D. Hemavathi
- Introduction to Numpy – Dr. K. Arthi
- Pandas – Dr. K. Priyadarsini
- Data Acquisition – Dr. A. Shobana devi
- Data Handling – Dr. P. Kanmani
- Data Wrangling – Dr. M. Sangeetha
- Data Cleaning and Preparation – Dr. K. Sornalakshmi
- Introduction to Visualization – Dr. V. Vijayalakshmi
- Advanced Visualization – Dr. S. Sharanya
- Case Studies – Dr. A.V. Kalpana

Creative writing and storytelling: Generative AI could have been utilized to generate creative stories, poems, and other forms of written content. AI-generated novels or short stories might have been published and gained recognition.

Workshop on Next Generation Interactive Visual Technologies

- The Department of Data Science and Business Systems successfully hosted a three-day workshop titled "Next Generation Interactive Visual Technologies" from May 17th to May 19th, 2023.
- The workshop aimed to equip participants with a basic understanding of Unity software and provide assistance in obtaining a Unity certification. The event was designed to explore the world of interactive visual technologies and their applications.

In photo Dr. A. Murugan, Professor, Mr. Rameshkumar from ARK Info solutions, Dr. M. Lakshmi, Head of the Department, Data Science and Business Systems

The workshop includes following topics:

- Introduce Unity Software: The workshop aimed to familiarize participants with Unity, a powerful platform for creating interactive 2D and 3D content, including games, simulations, and interactive visual experiences.
- Fundamental Knowledge: Participants were provided with essential knowledge about Unity's interface, basic tools, functionalities, and how to work with game objects and scenes.
- Graphics and Assets: The workshop covered the creation and manipulation of 2D and 3D graphics in Unity, allowing participants to understand how to design and integrate visuals into their projects.
- Interactive Visual Experiences: Participants explored the realm of interactive visual technologies, discovering how to create engaging and immersive experiences for various applications.
- Unity Certification Assistance: As part of the workshop, participants were offered guidance and support in preparing for Unity certification exams, enabling them to validate their expertise in the software.

What is NewsGPT? Entirely AI-generated, the newsgpt curates and distributes AI-generated news stories. The team behind NewsGPT aims to provide fast and reliable news, free from any human biases or errors. First launched in February 2023. Source: https://newsgpt.ai

Workshop on Next Generation Interactive Visual Technologies

The workshop was delivered by Mr. Rameshkumar from ARK Info solutions. Mr. Rameshkumar is an experienced professional in Unity software development and interactive visual technologies. His expertise and insights added immense value to the workshop, providing participants with practical knowledge and real-world applications.

The "Next Generation Interactive Visual Technologies" workshop organized by the Department of Data Science and Business Systems proved to be a successful and informative event. Participants gained essential skills and knowledge in Unity software, enabling them to create interactive and visually appealing projects.

The Department of Data Science and Business Systems extends its gratitude to Rameshkumar and ARK Info solutions for delivering an outstanding workshop. The event's success sets a precedent for future workshops aimed at promoting cutting-edge technologies and skill development within the department and beyond.

AI-generated virtual environments: Virtual reality experiences might have been enriched with AI-generated environments, landscapes, and objects, providing users with more realistic and immersive virtual worlds.

Visit to France - Short term Faculty abroad Program

Dr. V. Kavitha , Professor from DSBS had a productive visit to France from 2nd May to 12th May 2023 engaging with various universities and industries.

Her visit to France focused on building academic and research collaborations, fostering faculty and student exchange programs, and exploring opportunities for joint projects in various fields, including bioengineering and insect biology. Such international collaborations can significantly contribute to advancing research and knowledge in the respective domains.

Dr. V. Kavitha visited France for academic engagements and collaboration opportunities. She visited the following academic institutions:

- AgroParisTech & PRISME Lab: Meetings and discussions with researchers and experts at AgroParisTech & PRISME Lab, possibly exploring research collaborations and joint projects.
- UT Faculty of Pharmacy, Science & Tech: Engaging with faculty members and students at the UT Faculty of Pharmacy, Science & Tech, indicating potential research discussions or academic activities.
- Blios - University of Tours: Interaction with Blios, which is likely a department or research group at the University of Tours, possibly discussing research interests and cooperative projects.
- GUSTAVE ROUSSY: Visit to Gustave Roussy, a leading cancer research institute in France, indicating possible discussions on cancer research collaborations.
- Univ of Tours - Le Studium: Interactions with the faculty and students at the University of Tours, likely for academic collaborations and knowledge exchange.

"Through the eyes of Generative AI, machines glimpse the power of creation, and imagination becomes reality."

Training the Trainers - Great Learning PG Programs

The PG course in Engineering with the specialization in Data Science is jointly offered by DSBS department and Great learning institute. Every year, teachers handling the PG courses are trained by the Great learning institute in order to keep with the pace of the industrial trends. This kind of Training the trainers programs are essential for developing trainers' expertise and empowering them to deliver high-quality training sessions.

Prof. Dr. S. Ganeshkumar is the co-ordinator for this industry institute PG program. Under his guidance the even "Training the trainer" is organized from 17th to 19th of May 2023. This program equipped the faculties with new insights, tools, and techniques to enhance their training effectiveness. Such faculty development programs play a vital role in maintaining and elevating the standard of education and training offered by the institution, ultimately benefiting the learners and the organization as a whole.

- "Train the Trainer" program at Great Learning's office in Perungudi, is a successful and engaging event. The focus on faculty development likely aimed to enhance the skills and capabilities of the participating trainers.
- It was a day full of activities indicating that the program was well-structured to keep the faculties actively involved and interested throughout the day. Interactive sessions and hands-on exercises have been included to ensure a dynamic and immersive learning experience.
- The active participation of all the faculties is a positive sign, as it shows their enthusiasm and willingness to learn and improve their training abilities. This level of engagement is crucial for the program's success, as it helps foster a positive learning environment and encourages the exchange of ideas and experiences among participants.

Neural Networks Revival (1990s-2000s): Neural networks and backpropagation resurface, leading to breakthroughs in deep learning and the foundation for modern generative AI models.

IEEE EPICS - Multidisciplinary Project

AURAL REHABILITATION FOR CHILDREN IN TAMIL LANGUAGE

Dr R. Rajkumar of the Department of Data Science and Business systems and IEEE Students of our Student Branch in collaboration with Department of Audiology and Speech-Language Pathology work in conjunction with Dr. M. G. R. Home and Higher Secondary School for the Speech and Hearing Impaired to develop a kiosk-embedded device. This is meant to assist children who are deaf and hard of hearing that have recently been given hearing aids or cochlear implants to potentially improve their hearing.

- The kiosk provides three levels of auditory help: auditory awareness, auditory discrimination, and language acquisition. The tasks will have varying levels of difficulty based on the sound intensity, distance, direction, etc., all of which are meant to support the children and even advance the strength of their hearing.
- The actual setup of the kiosk provides a supportive environment for children. It accommodates seating for both the children and adult aid to access the touchscreen monitor and has speakers surrounding the seats. The sound provided is thus realistic. The kiosk has buttons on the screen, and with the microphone will be used to collect the responses from the children. The speakers will deliver instructions and stimuli. The device will also contain help and instructions in Tamil to assist.
- The device is expected to require minimal maintenance. It has a minimum lifespan of five years. For its initial phase, 150 children at Dr. MGR's School between 5 and 8 years old who have recently been given hearing aids will use the device. The second phase is another 5,000 children in surrounding locations with hopes for larger success in the future. **This project was provided a grant of $1,610 by EPICS in IEEE.**

- https://epics.ieee.org/project/aural-rehabilitation-for-children-in-tamil-language-india/

Autoencoders and RBMs (2000s-2010s): Development of unsupervised learning techniques like autoencoders and Restricted Boltzmann Machines (RBMs), setting the stage for generative models.

Faculty Upskilling Activities

CSEDU course in Effective Teaching in Network from IIIT Delhi.

- Dr. J. Jeba Sonia
- Dr. K. Priyadarsini - Excellence grade
- Dr. A. Shobana Devi
- Dr. K. Panimalar - Excellence grade


Dr. J. Jeba sonia


Dr. K. Priyadarsini


Dr. K. Panimalar

Golang by Wipro Technologies.

- Dr. M. Radha
- Dr. A. Shobana Devi
- Dr. R.Jayaraj


Dr. R.Jayaraj


Dr. A. Shobana Devi


Dr. R.Radhai

Patents Published and Granted

- **Dr.S.Suchitra and Dr Arthi**
  - An Effective Method for Estimating Security Risks for IOT Access Control Models - IPR, India
- **Dr. P. Kanmani**
  - Voice Powered Animal Monitoring System Using IOT- IPR, India
- **Dr. R. Rajkumar**
  - A System for Optimizing Data and Links on a Product Content Distributed over a Communication Network IPR, India
- **Dr. V. Vijayalakshmi**
  - IOT Based Camera for Healthcare Management- IPR , India

Out reach Activities

- Dr. R. Rajkumar delivered
  - Guest talk on Industry 5.0 to Hyndai Motor India Engineering Pvt Ltd, Sriperumbudur on 1oth April, 2023.
  - Guest talk on Web 3.0 with AI to EC Group Datasoft Pvt Ltd, Chennai on 24th April, 2023.
  - Training effective teaching using online tools at FRAP talk on 24th May, 2023.


Dr. R. Rajkumar

Generative Adversarial Networks (GANs) (2014): Ian Goodfellow introduces GANs, revolutionizing generative modeling by using adversarial training to generate realistic data.

FACULTY PUBLICATIONS

- **A. Chinnasamy,** "Retinal Image Analysis for Early Deduction of Diabetic Retinopathy," 2023 9th International Conference on Advanced Computing and Communication Systems (ICACCS), Coimbatore, India, 2023, pp. 2418-2421, doi: 10.1109/ICACCS57279.2023.10112769.

- **A.V. Kalpana**. "Gated Attention Based Deep Learning Model for Analyzing the Influence of Social Media on Education, Journal of Experimental & Theoretical Artificial Intelligence", DOI: 10.1080/0952813X.2023.2188262

- **Prabakar D,** "Trust aware ad hoc routing protocol with key management-based mechanism and optimal energy-efficient cluster head selection in mobile ad hoc networks". Concurrency Computat Pract Exper. 2023; 35(7):e7599. doi:10.1002/cpe.7599

- **Balasubramanian Prabhu Kavin**, "En-DeNet Based Segmentation and Gradational Modular Network Classification for Liver Cancer Diagnosis" Biomedicines 11, no. 5: 1309. https://doi.org/10.3390/biomedicines11051309

- **A. Chinnasamy**, "Fuzzy adaptive learning control network (FALCN) for image clustering and content-based image retrieval on noisy dataset[J]". AIMS Mathematics, 2023, 8(8): 18314-18338. doi: 10.3934/math.2023931

- **M. Anand**, "IoT-based patient stretcher movement simulation in smart hospital using type-2 fuzzy sets systems, Production Planning & Control", DOI: 10.1080/09537287.2023.2217419

- **G. Premalatha**, "An Efficient Cloud Storage Model for GOP-Level Video Deduplication using Adaptive GOP Structure, Cybernetics and Systems", DOI: 10.1080/01969722.2023.2176665

- **Elangovan G**. "An Integrated Z-Number and DEMATEL-Based Cooperation Enforcement Scheme for Thwarting Malicious Nodes in MANETs. Wireless Personal Communications". 130. 10.1007/s11277-023-10391-7.

- **A. Sasikumar**, "A Secure Big Data Storage Framework Based on Blockchain Consensus Mechanism With Flexible Finality," in IEEE Access, vol. 11, pp. 56712-56725, 2023, doi: 10.1109/ACCESS.2023.3282322.

- **A. V. Kalpana**, "Mobility and Behavior based Trustable Routing in Mobile Wireless Sensor Network," 2023 7th International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2023, pp. 1004-1008, doi: 10.1109/ICCMC56507.2023.10084040.

- **A. V. Kalpana**, "Health Information Broadcast Distributed Pattern Association based on Estimated Volume," 2023 Third International Conference on Artificial Intelligence and Smart Energy (ICAIS), Coimbatore, India, 2023, pp. 1326-1330, doi: 10.1109/ICAIS56108.2023.10073672.

- M Anand. "Millimeter assisted wave technologies in 6G assisted wireless communication systems: a new paradigm for 6G collaborative learning". Wireless Networks. 1-20. 10.1007/s11276-023-03324-6.

- M Anand. "Effective sound detection system in commercial car vehicles using Msp430 launchpad development. Multimedia Tools& Applications". 1-26.10.1007/s11042-023-15373-2.

FACULTY PUBLICATIONS

- **A.Sasikumar.** A low-power high speed full adder cell using carbon nanotube field effect transistors. Indonesian Journal of Electrical Engineering and Computer Science. 31. 134. 10.11591/ijeecs.v31.i1.pp134-142.

- **Siva Kumar A**. "Enhanced Elman spike Neural network optimized with flamingo search optimization algorithm espoused lung cancer classification from CT images". Biomedical Signal Processing and Control, 84. https://doi.org/10.1016/j.bspc.2023.104948

- **Siva Kumar A**, "Certain Investigation of Optimization Methods of Sensor Nodes in Biomedical Recording Systems," 2023 9th International Conference on Advanced Computing and Communication Systems (ICACCS), Coimbatore, India, 2023, pp. 1175-1181, doi: 10.1109/ICACCS57279.2023.10112688.

- **K. Priyadarsini**, "Performance Evaluation of Optical Wireless Communication System in Fog Weather Conditions," 2023 Second International Conference on Electronics and Renewable Systems (ICEARS), Tuticorin, India, 2023, pp. 683-688, doi: 10.1109/ICEARS56392.2023.10084953.

- **K. Priyadarsini**, "Execution of Convolution Coding Method for FPGA in Industrial Automation using VERILOG HDL," 2023 7th International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2023, pp. 1496-1500, doi: 10.1109/ICCMC56507.2023.10084251.

- **D. Rajeswari**, "Train Track Crack Prediction Using CNN with LeNet - 5 Architecture," 2022 International Conference on Futuristic Technologies (INCOFT), Belgaum, India, 2022, pp. 1-5, doi: 10.1109/INCOFT55651.2022.10094528.

- **T. Veeramakali**. "Deep learning techniques for prediction of pneumonia from lung CT images". Soft Comput. 27, 12 (Jun 2023), 8481-8491. https://doi.org/10.1007/s00500-023-08280-z

- **S. Suchitra** , "Recent Advances in Analysis and Detection of Tuberculosis System in Chest X-Ray Using Artificial Intelligence (AI) Techniques: A Review, Current Materials Science 2023"; 16(1) . https://dx.doi.org/10.2174/2666145415666220816163634

- **Shobana J**. "E-commerce customer churn prevention using machine learning-based business intelligence strategy." Measurement: Sensors 27 (2023): 100728.

- **T. Nadana Ravishankar**, "A deep learning approach for ovarian cysts detection and classification (OCD-FCNN) using fuzzy convolutional neural network", Measurement: Sensors,Volume 27,2023,100797,ISSN 2665-9174,https://doi.org/10.1016/j.measen.2023.100797.

- **P. Saravanan**. 2023. "Area-latency efficient floating point adder using interleaved alignment and normalization". Microprocessors and Microsystems. 99, C (Jun 2023). https://doi.org/10.1016/j.micpro.2023.104842

THINK YOUR DESIGN - DESIGN THE THINKING

Our New Out of Box think tank

Dr. K. Panimalar

Dr. A. Shobanadevi

Dr. G. Divya

Dr. V. Kavitha

Dr. T. Karthick

Dr. N. Parthiban

Dr. R. Raj Kumar

Dr. B. Prabhu kavin

Dr. R. Radha

Dr. D. Prabakar

Dr. P Rajasekar

Dr. D. Rajeswari

Dr. T. Veeramakali

Certified Associate Programmer in Unity Technologies

Mr V.Sarveshvar
III year, B.Tech CSE with Gaming Technology

A proud moment for the entire department of DSBS. We wholeheartedly congratulate Mr.Sarveshvar for obtaining the certification as a Certified Associate Programmer offered by Unity Technologies.

- This certification is designed for future game developers who want to showcase their mastery of core Unity skills and concepts to obtain their first professional Unity role.
- Unity Technologies is a renowned company known for its game engine and development tools, making this certification all the more valuable. Being in the 3rd year student program and already excelling in the gaming technology domain speaks volumes about Sarveshvar's passion and talent for this specialized area.
- Unity is widely used in the gaming industry, and the certification will undoubtedly open up various opportunities for Sarveshvar in the future. It's a significant milestone that showcases his expertise and commitment to his chosen career path. As he continues his academic journey and delves deeper into the world of gaming technology, this certification will serve as a strong foundation and a testament to his capabilities.
- May Sarveshvar's success inspire him to achieve even greater heights in his academic and professional endeavors in the gaming industry. Gaming Technology is a fascinating and rapidly growing field, and achieving this certification demonstrates Sarveshvar's dedication and skills in the area of game development.

Variational Autoencoders (VAEs) (2014): VAEs emerge as another powerful generative model, emphasizing probabilistic inference and latent space representations.

My Experience @ IIT Bombay's Internship

VR Research

VR films provide viewers with the feeling of being immersed in a story environment by giving them the freedom to look around and change their point-of-view during the experience. Storytellers use various techniques to guide the viewers to important plot-points in a VR Film. Previous studies have examined various such methods to design narratives for 360 degree VR films with linear narratives. In this study we look at the grammar of storytelling in a real-time 6 degrees-of-freedom (6DOF) VR film. We created "Belonging", a real-time VR interactive experience in which one has the freedom to experience the story by physically moving around in the environment and changing point-of-view as the story progresses. Through this project we intend to explore the design of narrative for a real-time VR film, focusing on the audio and visual cues that would guide the viewers effectively to the plot-points.

Tushar Vaid , III year
B.Tech CSE with Gaming Technology

We researched a lot of existing VR interactive experiences before we started making our own. We noted various things about all the experiences and kept them in mind while making our own experience. We started developing in Unreal Engine 5. The main goal was to take care of the technical aspects that were needed to make a VR scene optimized and interactable. The plan was to make the viewer physically walk around the VR environment and interact with the characters in the scene and have the experience progress. We had to program various interactions and various other VR aspects for the project. I was working with other design students and helping them by handling the technical parts like programming to create the final experience. I was able to learn about how a research project goes on and what are the aspects that need to be taken care of. I got to use a lot of equipment from the IIT's labs including a few VR headsets, high-end PCs, MoCap suits, etc. We took use of all this equipment to build our final experience.

Progressive GANs and StyleGANs (2017-2019): Further advancements in GANs with progressive training and StyleGAN, enabling the generation of high-resolution and realistic images.

My Experience @ IIT Bombay's Internship

Tushar Vaid's workstation in the IIT's Lab.

I met with a lot of IITians and learned about their experiences and understood their way of working and tackling tasks and tried to incorporate that in all of my projects. Based on our project, our professor taught us how to make a research paper. Which we did and posted to a conference. I was able to write my very own research paper for the first time.

After our development for the experience was complete, we called out a lot of IIT students and professors to test it out and provide feedback. We received very helpful insight from all of them that helped us improve our experience even more. Being there in the campus was a wonderful experience. I was able to learn a lot of things and gather a lot of experience from the IIT students and professors. IIT Bombay truly holds up to the reputation of being one of the top universities of our country.

Oriol Vinyals: A research scientist at Google DeepMind, Vinyals has worked on various aspects of deep learning, including generative models and natural language processing.

Let me Talk - Blockchain and DeFi

Decentralized Finance, often referred to as DeFi, is a revolutionary concept that leverages blockchain technology and cryptocurrencies to create an open, permissionless, and transparent financial ecosystem. It aims to provide financial services and products without relying on traditional financial intermediaries like banks or brokerages.

Its key features include: Decentralization, Smart Contracts, Interoperability, Open Access and Financial services like Decentralized Lending and Borrowing, Decentralized Exchanges (DEXs), Stablecoins and Yield farming and liquidity provision.

Divyanshu Kumar
B.Tech in CSBS (2022-2026)

- Blockchain is the foundational technology that underpins most DeFi platforms. It is a distributed and immutable ledger that records transactions across a network of computers.
- Distributed Ledger: A blockchain consists of a chain of blocks, where each block contains a list of transactions. This ledger is distributed across multiple nodes (computers) in the network, ensuring that no single entity has complete control over the data.
- Consensus Mechanisms: These mechanisms ensure that all nodes validate and agree on the order of transactions in the blocks.
- Security: Blockchain achieves security through cryptographic techniques. Each block contains a cryptographic hash of the previous block, creating a chain that is computationally secure.
- Decentralization: It is decentralized, meaning there's no central authority or intermediary controlling the data or the transactions.

DeFi on the Blockchain

- Smart Contracts: DeFi protocols use smart contracts, which are self-executing code deployed on the blockchain. These smart contracts define the rules and logic of the financial application. They can hold funds, execute transactions, and interact with other smart contracts.
- Decentralized Applications (DApps): DeFi applications are often built as DApps, which are front-end interfaces that interact with the underlying smart contracts.
- Tokenization: Many DeFi applications use tokenization, where real-world assets or native digital assets are represented as tokens on the blockchain. Tokens can represent cryptocurrencies, stablecoins, shares in assets, or even real-world items like real estate.
- Interoperability: DeFi protocols are designed to be interoperable. They can interact with each other, allowing composability, which means different DeFi applications can be combined to create new and more complex financial products.

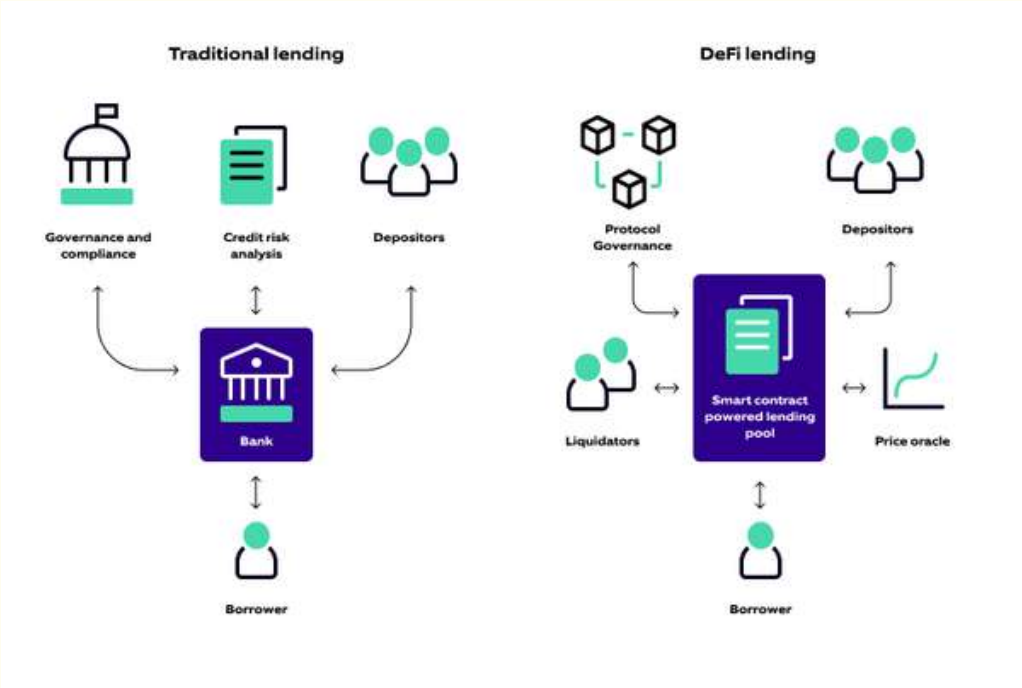
Transformers and Language Models (2017-2020): Transformers gain prominence in natural language processing tasks, with models like GPT-3 pushing the boundaries of generative text capabilities.

Let me Talk - Blockchain and DeFi

- Decentralized Exchanges (DEXs): DeFi often includes DEXs, which enable users to trade cryptocurrencies directly with each other through smart contracts, removing the need for a central exchange.

- Oracles: Oracles are services that fetch this external data (e.g., price feeds, weather information) and provide it to the smart contracts on the blockchain.

- Yield Farming and Liquidity Provision: Users can participate in yield farming and liquidity provision by depositing their funds into specific DeFi protocols. In return, they receive rewards, often in the form of additional tokens or fees generated by the protocol.



Decentralized finance, or DeFi, on the other hand, offers several advantages over traditional finance, including greater transparency, security, accessibility, and control for users.

- Firstly, DeFi offers greater transparency than traditional finance.
- Secondly, DeFi offers increased security.
- Thirdly, DeFi offers greater accessibility.
- Finally, DeFi allows users to have greater control over their finances.

Overall, DeFi offers several advantages over traditional finance, and it provides users with greater control over their finances. As blockchain technology continues to evolve, we can expect to see further innovations in DeFi that will further improve its transparency, security, accessibility, and usability.

"Generative AI breathes life into the canvas of imagination, painting dreams with lines of code."

Let me Talk - Data Governance: Paving the Path to Data-Driven Excellence

Sanya Mathur
RA2211042010042 - CSBS

In the dynamic landscape of modern business, data reigns supreme as the most valuable asset. Organisations worldwide are experiencing an unprecedented influx of data, generated from diverse sources, ranging from customer interactions to IoT devices. Amidst this deluge of information, the key to unlocking the true potential of data lies in robust data governance. In this elaborate article, we delve into the essence of data governance, exploring its multifaceted significance in paving the path to data-driven excellence.

I. Understanding Data Governance: A Comprehensive Overview

Data governance is not a mere buzzword but a strategic framework designed to manage and safeguard an organisation's data assets effectively. At its core, data governance encompasses the formulation of policies, procedures, and practices to regulate data collection, storage, integration, security, and utilisation. The fundamental objective of data governance is to cultivate a culture of responsible data management, fostering data-driven decision-making across all business units.

II. Data Quality: The Keystone of Analytics

In the realm of business analytics, data quality is of paramount importance. Inaccurate, incomplete, or outdated data can lead to skewed insights, hampering effective decision-making. Data governance plays a pivotal role in ensuring data quality by establishing standardised data validation processes, data cleansing mechanisms, and data profiling techniques. Through data governance, organisations gain the confidence to rely on their data, making data-driven decisions that drive growth and innovation.

III. Navigating Regulatory Challenges: A Must for Data Compliance

As data becomes more valuable, so does the responsibility to protect it. Data governance is the compass that enables organisations to navigate the treacherous waters of regulatory compliance. With data privacy regulations such as the GDPR, CCPA, and HIPAA becoming more stringent, adherence to data protection guidelines is no longer an option but an ethical and legal imperative. Data governance aids organisations in implementing robust data security measures, ensuring the confidentiality, integrity, and availability of sensitive information.

Ian Goodfellow: One of the pioneers of Generative Adversarial Networks (GANs), which revolutionized generative modeling. Goodfellow's work on GANs has had a profound impact on the field.

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IV. Collaboration: The Key to Data Governance Success

Data governance is not a one-person show but a symphony of collaborative efforts. IT professionals, data managers, legal experts, and business leaders must come together to forge a seamless data governance framework. Cross-functional collaboration fosters a data-driven culture within the organisation, wherein data-driven decision-making becomes the norm. Through shared ownership and collective responsibility, data governance eliminates data silos, streamlines processes, and maximizes the value of data assets.

V. Future-Proofing with Emerging Technologies

The relentless march of technology has introduced cutting-edge innovations such as artificial intelligence (AI) and machine learning. Data governance assumes even greater significance as organisations embrace these game-changing technologies. AI algorithms are only as effective as the data they are trained on. Data governance ensures the availability of high-quality, bias-free data, empowering AI to drive predictive and prescriptive analytics, revolutionizing industries across the board.

VI. Data Monetization: Transforming Data into Revenue

As data governance strengthens an organisation's data management practices, data monetization becomes a tangible reality. With a well-governed data strategy, organisations can unlock the latent value of their data assets by sharing, licensing, or partnering with other businesses. Data governance empowers organisations to harness the commercial potential of their data, opening new avenues for revenue generation and business expansion.

Conclusion:

In conclusion, data governance emerges as a cornerstone of modern-day business analytics, guiding organisations through the labyrinth of data management and fostering data-driven decision-making. By adhering to stringent data quality standards, navigating complex regulatory landscapes, and nurturing a collaborative data culture, organisations can transform their data from a dormant resource to a transformative powerhouse. As we embrace the era of AI and emerging technologies, data governance serves as the vanguard, safeguarding the integrity, security, and relevance of data. With data governance as the bedrock, organisations can confidently embark on a data-driven journey, embracing the power of data to shape their future and achieve unrivalled excellence in a data-centric world.

Cross-Modal Generative Models (2020s): Research expands into cross-modal generative models, bridging the gap between vision and language, resulting in impressive image and text synthesis.

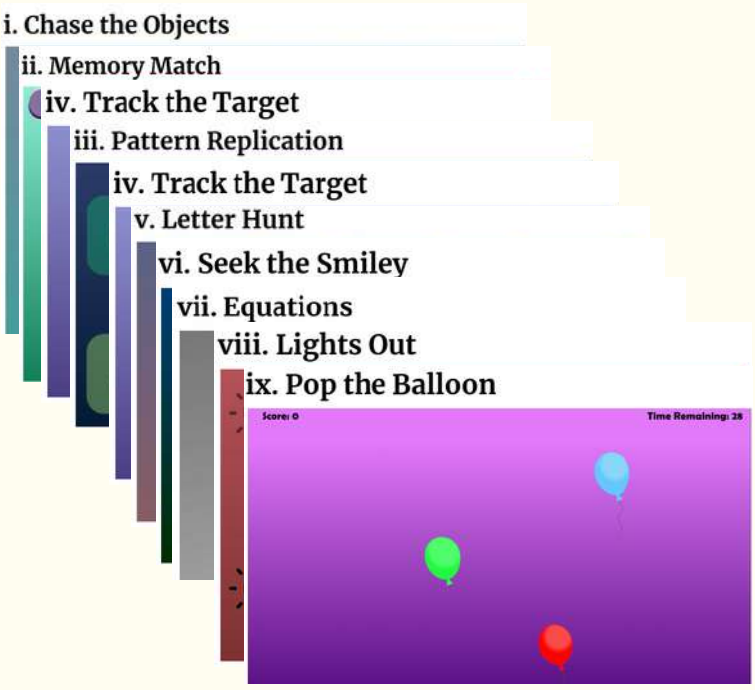
COGWHEELER -Collaborative Student Project

Mentors

- Dr. U. Ganapathy Sankar
  - Dean,
  - Department of Occupational Therapy, SRMIST - KTR
- Dr. M. Lakshmi,
  - Head of the Department,
  - Department of Data Science and Business Systems
- Dr. A. Murugan,
  - Professor, Gaming Technology,
  - Department of Data Science and Business Systems.

About:

Cogwheeler is an android-based gaming application designed and developed by the students of Gaming Technology, Department of Data Science and Business Systems in collaboration with the Department of Occupational Therapy. The project implements the concepts of gaming technology in the field of medical science for a gamified approach to therapy. The core objective of the project is to make the process of occupational therapy more intuitive and friendly towards patients.



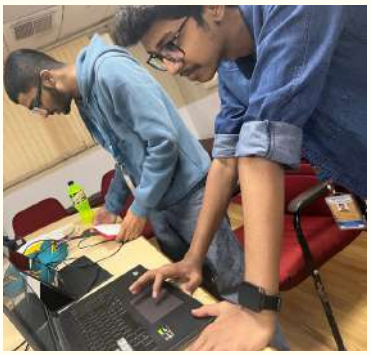
The game consists of a set of 9 minigames specifically designed to cover different aspects of occupational therapy.

Ilya Sutskever: A co-founder of OpenAI, Sutskever's research spans various areas of AI, including generative models, natural language processing, and reinforcement learning.

COGWHEELER -Collaborative Student Project

Cogwheeler provides a new way of approaching patients with Parkinson's as it gives occupational therapists a whole new way of testing their patients. As the app has been built with an intuitive and simple interface, therapists can easily navigate through the games and guide their patients.

The response times displayed at the end of each game can be recorded can help the therapists in keeping track of the patient's progress.



Team Leads
Sarveshvar VV
Antony Sam Jaiton
Stephy Keziah S

Game Development
Adithyaa Hariharan
Karthikeyan Pandiyan
Divyansh Chauhan
Mithilesh Mohanty
Safa Mehreen
Arya Narone

Asset Design
Harshvardhan Sharma
Samridhi Ranjan

UI Design
Shyam Ganesh K
Vijaya Raghavan S

SFX & Score
Akshat Jain

Hardware Integration
Bhavy Bhatnagar

Geoffrey Hinton: Often referred to as the "Godfather of Deep Learning," Hinton's work has been fundamental in advancing neural networks, including generative models.

Jeffrey Ullman Colloquium

Jeffrey Ullman Colloquium has been initiated with the aim of researching effectively among the Research Scholars of Department of Data Science and Business Systems.Weekly seminar series are conducted among the Research scholars and the Faculty members.The seminar series consists of the tools,methodologies,algorithms,etc from which the researchers will get benefited from.Open and regular communication is very much encouraged.

Title: Resnet Architecture

Name of the Scholar : Mrs.Shweta.V

Supervisor Name : Dr.Vadivu.G

Date : 08/04/2023

After the first CNN-based architecture (AlexNet) that win the ImageNet 2012 competition, Every subsequent winning architecture uses more layers in a deep neural network to reduce the error rate. This works for less number of layers, but when we increase the number of layers, there is a common problem in deep learning associated with that called the Vanishing/Exploding gradient. This causes the gradient to become 0 or too large. Thus when we increases number of layers, the training and test error rate also increases. In order to solve the problem of the vanishing/exploding gradient, this architecture introduced the concept called Residual Blocks. In this network, we use a technique called skip connections. The skip connection connects activations of a layer to further layers by skipping some layers in between. This forms a residual block. Resnets are made by stacking these residual blocks together. The approach behind this network is instead of layers learning the underlying mapping, we allow the network to fit the residual mapping. So, instead of say H(x), initial mapping, let the network fit, F(x) := H(x) - x which gives H(x) := F(x) + x.

Title: K-Nearest Neighbor Algorithm

Name of the Scholar: Mrs. Sangeetha G

Supervisor Name : Dr.Vadivu.G

Date : 15/04/2023

K-Nearest Neighbor is one of the simplest Machine Learning algorithms based on Supervised Learning technique and can be used for both Classification and Regression.K represents the number of nearest neighbours you want to select for making prediction.K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories. It is also called a lazy learner algorithm because it does not learn from the training set immediately instead it stores the dataset and at the time of classification, it performs an action on the dataset.

Yoshua Bengio: A leading figure in the deep learning community, Bengio's research has contributed to various aspects of AI, including generative models and unsupervised learning.

Jeffrey Ullman Colloquium

Title: Data Integration in Machine Learning

Name of the scholar : Mr. Praveen Kumar S
Supervisor Name : Dr. Karthik T
Date : 29/04/2023

Data integration in machine learning refers to combining and merging data from multiple sources to create a unified and comprehensive dataset. Data integration aims to enhance the quality and scope of the data available for training machine learning models. This process is crucial because machine learning algorithms often require large and diverse datasets to make accurate predictions and uncover meaningful patterns.

Title: MATLAB in Machine Learning and Deep Learning

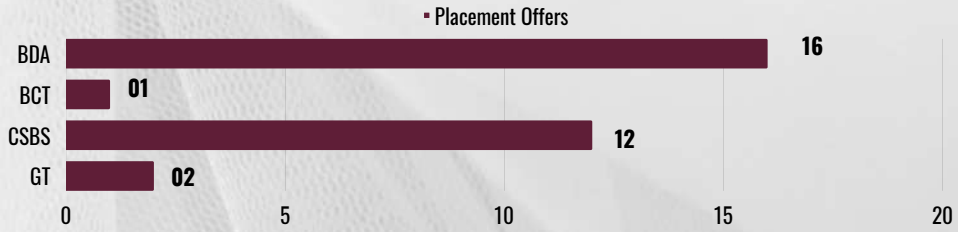
Name of the Scholar : Mrs. Anbumozhi
Supervisor Name : Dr. Shanthini A
Date : 06/05/2023

MATLAB provides tools to help you try out a variety of machine learning models and choose the best. Some machine learning tasks are made easier by using apps, and others use command-line features. Matlab has applications in various areas like ML, mathematics (Matrix-based calculations), data analysis, etc. Unlike R, that is mainly used in statistical analysis and data analytics.

Text Generation: Language models like GPT-3 and other transformer-based architectures can generate human-like text. They find applications in natural language generation for chatbots, language translation, content creation, and creative writing assistance.

DSBS Placements - 2023

DSBS department houses 5 specializations viz., Big Data Analytics, Computer Science and Business systems, Data Science, Gaming Technology and Blockchain Technology. This year, along with Big Data Analytics, Computer Science and Business systems, Gaming and Blockchain Technology students are also appearing for Placements for the first time. We have kickstarted the season successfully. The following are the statistics of our students:



School of Computing - Faculty Appreciation 2023

Receiving Consultancy Project
Dr. M. Lakshmi
Dr. K. Shantha Kumari
Dr.N.Parthiban
Dr.V. Kavitha

In-house Projects
Dr. A. Murugan
Dr. M. Lakshmi
Dr. P.Saravanan
Dr.M.Sangeetha

External Project Funding
Dr. R.Rajkumar
Dr. Rajeswari

International Collaboration
Dr. K. Sornalakshmi
Dr. G. Vadivu
Dr. A. Shanthini
Dr.N.Parthiban
Dr.V. Kavitha

Industry Collaboration
Dr. A. Murugan
Ms.S.Sindhu
Dr. A. Shobanadevi

Innovative Teaching Contributions
Dr. A. Kalpana
Dr. R.Rajkumar

Upskilling knowledge
Dr. S.Sharanya
Dr.P.C.Karthik
Dr.T.Veeramakali
Dr.A.SHOBANADEVI
Dr.K.Priyadarsini
Dr.A.Murugan
Dr. R.Radha
Dr. P. Saravanan

Research Contributions
Dr. N Manikandan
Dr. M. Prakash

Patent grants
Dr. N Manikandan
Dr. M. Prakash

Books / Book Chapter
Dr. R. Rajkumar
Dr. M. Prakash
Dr. A. Shanthini
Dr. G. Vadivu

100 % Placement
Dr. R. Rajkumar

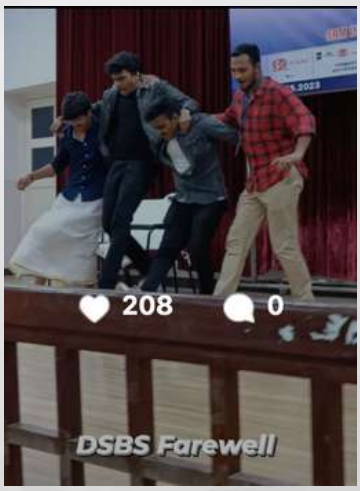
DSBS FAREWELL -2023

Department of Data science and business department bid farewell to our final year students belonging to B.Tech in CSBS and B.Tech CSE with specialization Big Data analytics on 17th May 2023 at Mini hall-2, T.P Ganesan Auditorium. The farewell was celebrated in a great way to recognize their hard work and achievements throughout their academic journey.

Our Head of the department, Dr. M. Lakshmi, and all the program coordinators participated in the event shows the significance of the occasion and highlights the support and guidance they have provided to the students throughout their studies.

The active participation of the students themselves have made the farewell even more special and meaningful. Sharing their emotions and feedback during the event allows them to express their experiences and memories, making it a heartfelt and memorable gathering.

DSBS FAREWELL -2023



Congratulations to All

SRM Convocation

Welcome to DSBS

Dr. S. Wilson Prakash

Dr. M. Geetha Jenifel

Head for iOS Development Center

Dr. A. Murugan

DSBS Farewell

New PhD's

Dr. K. Panimalar

Dr. R. Radha

திருக்குறள் | Thirukkural

DATA CHRONICLE

OFFICIAL NEWSLETTER

DEPARTMENT OF DATA SCIENCE AND BUSINESS SYSTEMS

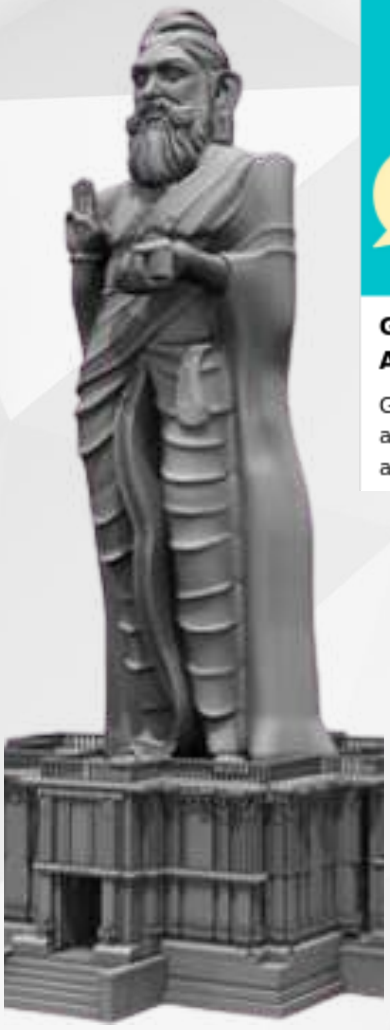
SCO | SRMIST | CHENNAI

EDITORIAL TEAM

4TH FLOOR, UNIVERSITY BUILDING, SRMIST

Contact: dsbsnews@gmail.com

July 2023



Tamil Poet- Tiruvalluvar
(2000 Years ago)

How to use KuralBot ?

குறள் 664

சொல்லுதல் யார்க்கும் எளிய அரியவாம்
சொல்லிய வண்ணம் செயல்

உரை

இச் செயலை இவ்வாறு செய்து முடிக்கலாம் என்று சொல்லுதல் எவர்க்கும் எளியனவாம், சொல்லிய படி செய்து முடித்தல் அரியனவாம்.

Meaning

It is easy for anyone to talk,
But hard to act thereon.