JSS Academy of Higher Education & Research, Mysuru
(Deemed to be University – Accredited 'A+' Grade by NAAC)

JSS College of Pharmacy, Ooty
(An ISO 9001:2015 Certified Institution)

Department of Pharmacy Practice

A Brief Report on Invited Impact Pharmacy Lecture Series 2023 – Lecture 03
(New connections and New learning)

Date: 23.02.2023

Name of the presenter:
Dr Rudresh Deepak Shirwaikar
Associate Professor
Dept. of Computer Science Engineering
AITD, Univeristy of Goa, Goa

Title of the presentation:
Applications of artificial intelligence in neonatal setting:
An Manipal Experience

Program Organized by:
Dept. of Pharmacy Practice &
Pharmacy Education Unit
JSS College of Pharmacy, Ooty

New Connections and New Learning: Pharmacy Practice- "Learning in the flow of work"

Making learning is a part of everyday work – and everyone's experience at work differs of course and it multiplies at different places. Internship training for Pharm D students is an opportunity to learn new and provide service to the needy patient population. To enhance their learning experience, the institute has created new connections and learning opportunity at various practice settings. Our students are very excited to be at new practice site(s) to learn and demonstrate/shape their competencies.

Dr Rudresh Deepak Shirwaikar has completed PhD in Computer Science and Engineering from Manipal Institute of Technology (MIT), MAHE, Manipal. He has 17 years of experience in teaching, research and administration. His research areas of interest include artificial intelligence in medicine, data mining, machine learning and big data management, ware housing and deep learning. He has published around 25 articles in reputed Scopus indexed journals and attended several national and international conferences to his credit.

Dr Rudresh started his presentation with the introductory note to the artificial intelligence as the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, and speech recognition and machine vision. AI requires a foundation of specialized hardware and software for writing and training machine learning algorithms. No one programming language is synonymous with AI, but a few, including Python, R and Java, are popular. Often what they refer to as AI is simply one component of AI, such as machine learning.

He also explained about Machine learning is a modern innovation that has enhanced many industrial and professional processes as well as our daily lives. It's a subset of artificial intelligence (AI), which focuses on using statistical techniques to build intelligent computer systems to learn from available databases

What is the example of machine learning application?

Automatic friend tagging suggestions on Facebook are one of the best machine-learning applications. Facebook automatically locates a face that matches its database using face detection and image recognition and then advises us to tag that individual using DeepFace.

Machine learning (ML) is a type of artificial intelligence (AI) that allows software applications to become more accurate at predicting outcomes without being explicitly programmed to do so. Machine learning algorithms use historical data as input to predict new output values. Further he also explained about the utilization of artificial intelligence and machine learning in medical / pharmaceutical fields.

Machine learning is a tool used in health care to help medical professionals care for patients and manage clinical data. It is an application of artificial intelligence, which involves programming computers to mimic how people think and learn. Machine learning in healthcare can be used to develop better diagnostic tools to analyze medical images. For example, a machine learning algorithm can be used in medical imaging (such as X-rays or MRI scans) using pattern recognition to look for patterns that indicate a particular disease. Machine learning has the potential to provide more accuracy in diagnostic results, as well as saving time and money, and most importantly, saving lives. For example, machine learning could detect diseases earlier.

Machine Learning for healthcare technologies provides algorithms with self-learning neural networks that are able to increase the quality of treatment by analysing external data on a patient's condition, their X-rays, CT scans, various tests, and screenings. Alzheimer's disease, heart failure, breast cancer, and pneumonia are just a few of the diseases that may be identified with ML. The emergence of machine learning (ML) algorithms in disease diagnosis domains illustrates the technology's utility in medical fields.

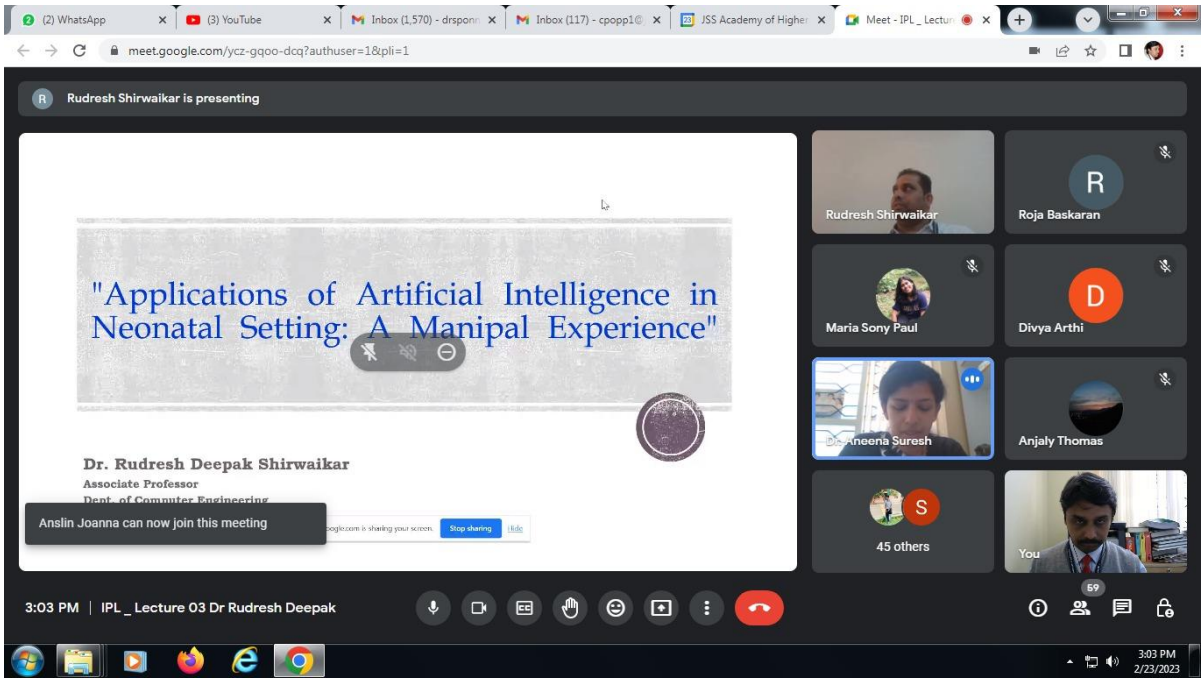
Machine learning-powered tools can sift through more data, including libraries of similar patients, diagnoses, and genetics, than one person can process. As such, ML opens data resources that include treatment options and predictions for each treatment's effectiveness, mortality rates, side effects, and cost. And the number one problem facing Machine Learning is the lack of good data. While enhancing algorithms often consumes most of the time of developers in AI, data quality is essential for the algorithms to function as intended.

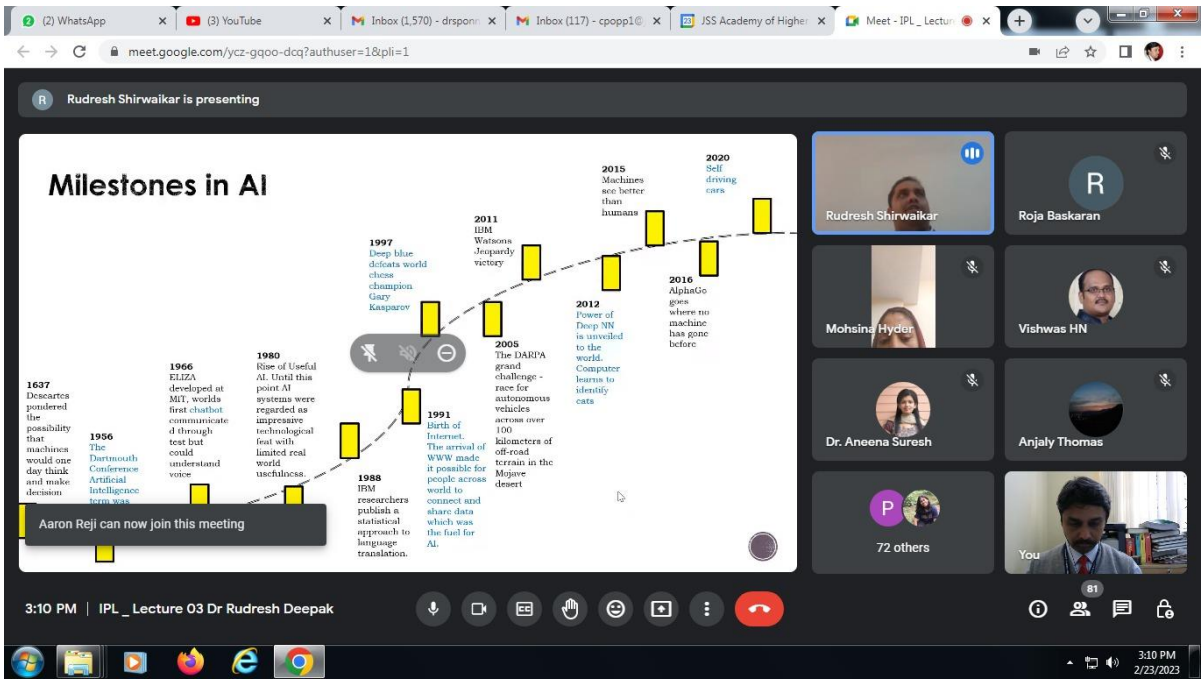
Further, Dr Rudresh explained his experience in developing the machine learning algorithm for the management of neonatal problem in tertiary care settings. He narrated the development of algorithm for the Neonatal intensive care unit problem and the measuring the outcome of the management of various clinical issues handled at NICU.

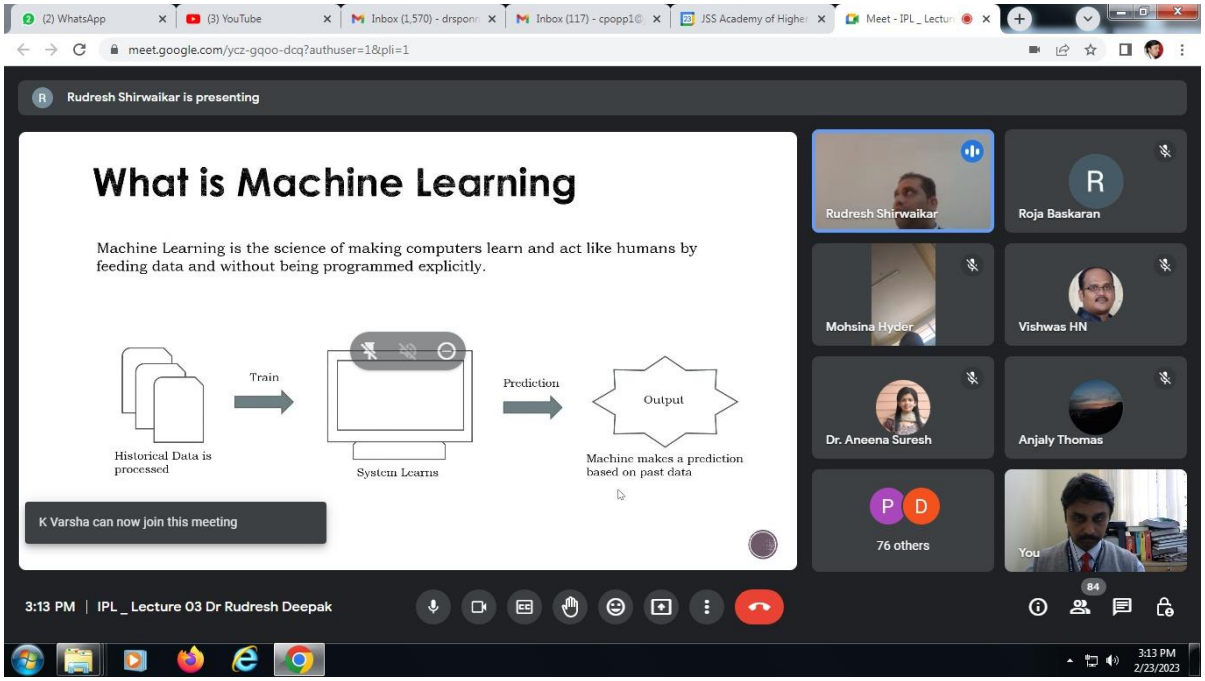
Dr Rudresh then also explained about the validation process of the developed algorithm and its application in medical care of the neonatal patients.

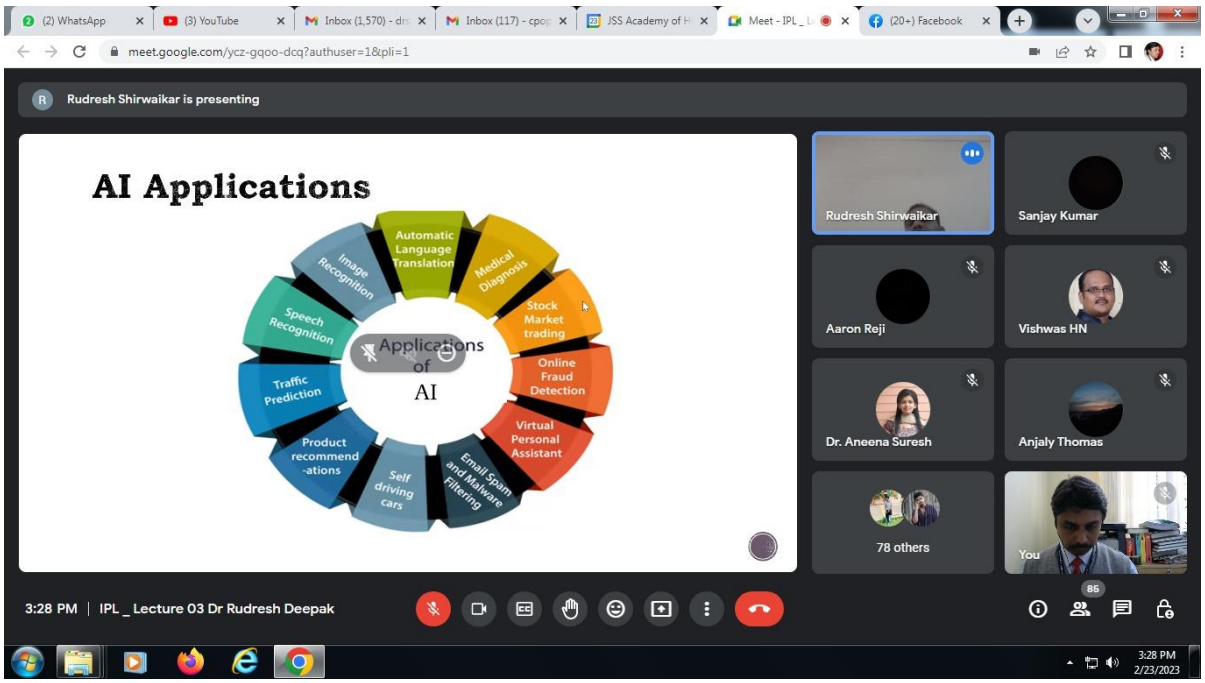
The session was then concluded by Dr Rudresh Shirwaikar by taking questions from staff and students. More than 87 students and staff were fruitfully benefited with this invited virtual guest lecture.

Dr S Ponnusankar
Co-ordinator


Rudresh Shirwaikar is presenting
"Applications of Artificial Intelligence in Neonatal Setting: A Manipal Experience"
Dr. Rudresh Deepak Shirwaikar
Associate Professor
Anslin Joanna can now join this meeting
Rudresh Shirwaikar
Roja Baskaran
Maria Sony Paul
Divya Arthi
Anjaly Thomas
45 others
You
3:03 PM | IPL _ Lecture 03 Dr Rudresh Deepak


Rudresh Shirwaikar is presenting
Milestones in AI
1637
1956
1966
1980
1988
1997
2005
2011
2012
2015
2016
2020
Aaron Reji can now join this meeting
Rudresh Shirwaikar
Roja Baskaran
Mohsina Hyder
Vishwas HN
Dr. Aneena Suresh
Anjaly Thomas
72 others
You
3:10 PM | IPL _ Lecture 03 Dr Rudresh Deepak


Rudresh Shirwaikar is presenting
What is Machine Learning
Machine Learning is the science of making computers learn and act like humans by feeding data and without being programmed explicitly.
Historical Data is processed
Train
System Learns
Prediction
Output
Machine makes a prediction based on past data
K Varsha can now join this meeting
Rudresh Shirwaikar
Roja Baskaran
Mohsina Hyder
Vishwas HN
Dr. Aneena Suresh
Anjaly Thomas
76 others
You
3:13 PM | IPL _ Lecture 03 Dr Rudresh Deepak


Rudresh Shirwaikar is presenting
AI Applications
Applications of AI
Automatic Language Translation
Medical Diagnosis
Stock Market trading
Online Fraud Detection
Virtual Personal Assistant
Email Spam and Malware Filtering
Self driving cars
Product recommend -ations
Traffic Prediction
Speech Recognition
Image Recognition
Rudresh Shirwaikar
Sanjay Kumar
Aaron Reji
Vishwas HN
Dr. Aneena Suresh
Anjaly Thomas
78 others
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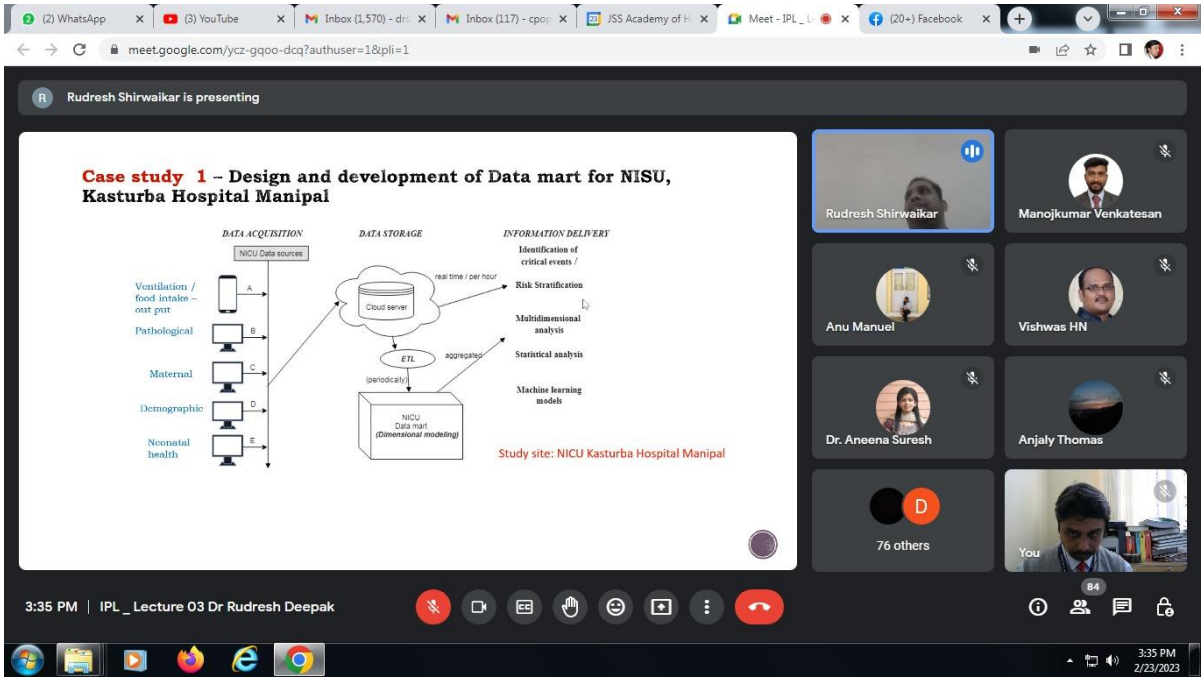
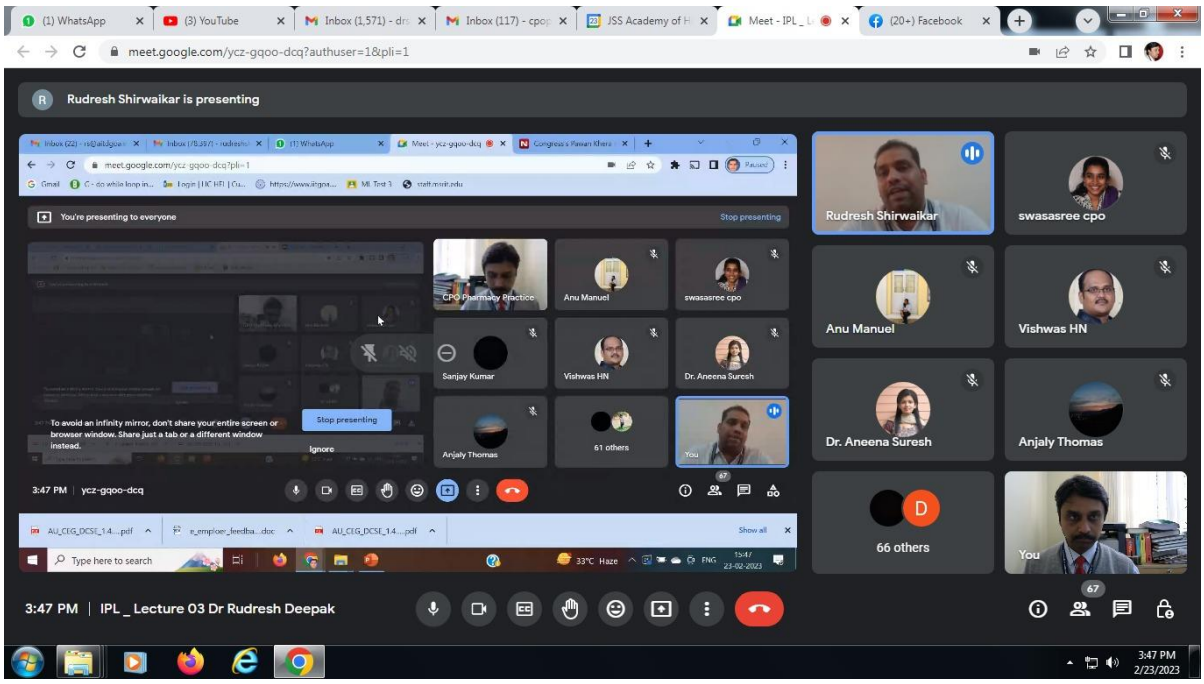

Rudresh Shirwaikar is presenting
Case study 1 – Design and development of Data mart for NISU, Kasturba Hospital Manipal
DATA ACQUISITION
DATA STORAGE
INFORMATION DELIVERY
NICU Data sources
Ventilation / food intake – out put
Pathological
Maternal
Demographic
Neonatal health
Cloud server
real time / per hour
ETL
aggregated
(periodically)
NICU Data mart (Dimensional modeling)
Identification of critical events /
Risk Stratification
Multidimensional analysis
Statistical analysis
Machine learning models
Study site: NICU Kasturba Hospital Manipal
Rudresh Shirwaikar
Manojkumar Venkatesan
Anu Manuel
Vishwas HN
Dr. Aneena Suresh
Anjaly Thomas
76 others
You
3:35 PM | IPL _ Lecture 03 Dr Rudresh Deepak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Anu Manuel
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Dr. Aneena Suresh
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