

A Newsletter by iHub-Anubhuti

ISSUE NO. 4, MARCH 2022



COGNITIVE COMPUTING/AI/ML TRENDS AND INNOVATIONS IN HEALTH

by iHub Anubhuti-IIITD Foundation Team

The situation in the past two years has emphasized a need to have robust and scalable healthcare systems supported and complemented by technology. We have seen how technology has been harnessed to provide access to health infrastructure and medical resources, connecting citizens of the country to what may be called their digital health identities. Even before the Coronavirus crisis, there was a growing trend of healthcare and patient data becoming available digitally, ready for computation and analysis. When applied to such healthcare data, structured or unstructured data, Artificial intelligence has excellent use. Even though it is foreseen that artificial intelligence will not wholly replace human health professionals, it will undoubtedly play a huge role in assisting them in activities like screening for anomalies and diagnosis. In a significant way, Artificial Intelligence can use sophisticated algorithms to derive inferences from healthcare data. These inferences will help provide real-time medical procedures, navigate complications, etc.

Predictive modeling can help predict outcomes of treatments and help successfully walk through them. Robots are already being used in surgeries, and quite successfully at that. Diagnostic activities make good use of image processing, which helps process scores of diagnostic and medical testing images. Artificial intelligence is also being used to detect cancer at its earliest stages at this stage of diagnosis. Artificial intelligence is also being used in researching and developing new treatments and drugs. While the potential for AI to independently conduct all aspects of the drug development process is still limited, AI significantly aids in individual stages of the drug development process. It speeds up clinical trial

processes by creating more efficient methods of subject recruitments. It also optimizes the process of drug selection by quickly eliminating those candidates most likely to fail clinical trials. Some real-world applications of artificial intelligence and machine learning in medicine include IBM Watson Genomics, a significant application of cognitive computing to generate insights from sequencing tumors and thus help develop specific treatments.

Another example that further emphasizes the utility of data-driven approaches using these novel concepts and AI and cognitive computing technologies is Google DeepMind. It is a novel move at creating timely response systems that alert healthcare providers about any anomaly or aberration in the patient's condition so that they may provide immediate support to the patient, in many cases, which might be vital for the survival of the patient. The critical portion one looks at while considering the future of cognitive computing and artificial intelligence in healthcare is the ability of pattern detection, identification, and analysis. Understanding a patient and a human physician does and using data-driven methods to arrive at conclusions beneficial to the patient's well-being again form the basis of the future of cognitive computing and artificial intelligence in healthcare. While there might be doubts about whether such cognitive computing solutions can fully replace human healthcare personnel, they can undoubtedly be utilized to assist, and complement the efforts of such personnel, now and in the future.

Initiatives

AMRIT GRAND CHALLENGE

Collaboration with DBT, BIRAC and other partners

iHub Anubhuti in collaboration with BIRAC, DBT, MeitY, NASSCOM, Grand Challenges India (GCI), and several other partners, announced a nationwide Grand Innovation challenge program "Amrit Grand Challenge-जनCARE", envisioned to identify 75 Digital Healthtech Innovations in Telemedicine, Digital Health, mHealth with Big Data, AI ML, blockchain and other technologies from Start-ups/Individuals/Companies for strengthening the Healthcare ecosystem in India.

The program is aligned to the National Digital Health Mission (NDHM) and will attempt to support the various verticals of managing digital health records and patient compliance standards mandated for Indian citizens.



For JanCARE the Program structure shall allow identification of 75 awardees under 3 Categories:

- i. 60 early-stage Innovations for INR 10 Lakhs award
- ii. 13 Late-stage innovations for INR 20 Lakhs award
- iii. 2 Advanced stage innovations for INR 50 lakhs award

Areas of Focus/Preferred Solutions

The platform is looking for technology interventions that can positively impact healthcare delivery especially the affordability, accessibility and quality of services. The grand challenge is open for below mentioned digital healthcare interventions, but not limited to:

- Access to primary healthcare in tier-2, tier-3 cities and rural settings: Low cost/scalable/viable innovations with relevant lifespan, Synergy with physical & Digital/ Hybrid system for primary healthcare
- Solutions to enhance patient compliance – Patient tracking systems, Patient health record management, Patient enrolment system, Patient Triaging, Digital identity, Health protection & health promotion/health education, Patient Compliance/ Homecare, Entitlement of patients

- Health Data Collection, Predictive Analysis and digital learning in medicine Image-based diagnosis, clinical decision support system, Smart and connected hospitals, Disaster management, Early screening/ Tertiary Prevention/ Disability delay, Decision support system, Self-learning/training solutions, Computation/ Predictive Analysis at local & global level
- Data Privacy, Storage and Security Solutions – Federated learning models, Offline-online hybrid healthcare model, self-learning management systems, healthcare financing/insurance, Data Integration solutions, Exchange of Information solutions
- Solutions for improved community outreach: Interventions to facilitate to/through Asha workers, Supply chain technologies, logistics, resource allocation tools, Digital bridge for a connected healthcare system
- Data-driven modeling to enable pharma/biopharma research development and Innovation.
- The solutions aligned with Ayushman Bharat and National Health Digital Mission (NHDM) will be the preference.
- Call for application announced on 26th Jan 2022. Last date for submission of applications: 31st March 2022 at 5:30 pm at BIRAC portal
- The Selection results are expected to be announced by 15th Aug 2022.



AMRIT GRAND CHALLENGE-WEBINAR SERIES

As you all are aware, we are one of the partners of nationwide Grand Innovation Challenge Program “Amrit Grand Challenge-जनCARE” alongwith BIRAC, DBT, NASSCOM, Grand Challenges India (GCI), Startup India, IKP and several other partners.

A series of webinars are being organized under this Grand Innovation Challenge Program. One such awareness session was organized on February 25th, 2022 by IKP Knowledge Park, Hyderabad and the topic was ‘Access to primary healthcare in tier-2, tier-3 cities and rural settings.’

The session was set forth by Dr Dupptla, AVP IKP with a warm welcome and introduction. Mr. Mukesh Malhotra, CEO iHub Anubhuti gave an overview about Amrit Grand Challenge-जनCARE. He talked about the framework of the program, the funding support and shared how the platform is looking for technology interventions that can positively impact healthcare delivery especially the affordability, accessibility and quality of services.

Other esteemed speakers covered various other topics related to challenges and opportunities in Healthcare. Thereafter, the topics discussed in the session were:

‘Reimaging healthcare delivery’ by Mr Dharmraju, President ARTPARK, ‘Challenges and gaps in healthcare access and possibility in innovation’ by Prof. B Shamanna, School of Medical Sciences, University of Hyderabad, ‘Startup Perspective: Some opportunities for healthcare innovations’ by Dr. Sundeep Kapila, Co-Founder and CEO, Swasth Foundation. ‘Digital healthcare platform for Healthcare delivery’ by Sivaram Bandhakavi, MD, IKP Centre for Technologies in Public Health.



The webinar was quite interactive and well received by various participants.

We are looking forward to meet the various innovators and startups in Telemedicine, Digital Health, mHealth who are using Big Data, AI ML, blockchain and other technologies. We hope to create a difference in strengthening the Healthcare ecosystem in India by way of this Grand Innovation Challenge.

ANVESHAN 2022

On 11th of January 2022, Center of Excellence in Healthcare (CoEHe), Centre of Excellence on Sustainable Mobility, Infosys Centre for Artificial Intelligence IIITD, Center for Design, New Media (CDNM), and IIIT-Delhi conducted Hackathon, under the name "ANVESHAN 2022". iHub Anubhuti IIIT Delhi foundation sponsored the winning prize money and also jointly judged the teams. Themes followed at ANVESHAN were Human-Centered AI, Computer Vision, Natural Language Processing, Metaverse, Technology & Society and Speech/ Audio providing platform.

The event was a great success and it registered 32 teams, with 132 participants. All the participants were given a time period of two weeks for the completion of the task. It had a total of two rounds and after the 1st round 14 teams were shortlisted with 58 participants in total. It was quite a fight among teams for the title of ANVESHAN 2022.



Winners were: **Vimaan** (Team Members: Aniansh Raj Singh, Dev Rajput & Harsh Bhardwaj Mentored by: Dr. Sayan Basu Roy) and **Macaroon** (Team Members: Tanishk Goyal, Vibhu Dubey, Anindya Prithvi & Aditya Pratap Singh)

First Runner-up is team **Tuvoi** (Team Members: Siya Garg, Shivam Gupta & Ambuj Bhaskar Tiwari Mentored by: Dr. Richa Gupta & Dr. Indrani De Parker) and **HydroHomies** (Team Members: Mehul Arora, Kanishk Goel, Mohammed Kaif, Udbhav Verma & Priyash Shah) were the second runner-ups



CoEHe



INDRAPRASTHA INSTITUTE of
INFORMATION TECHNOLOGY DELHI



iHub Anubhuti-
IIITD Foundation



Center for Design
& New Media

Infosys Centre for
Artificial Intelligence

Aniansh Raj Singh



Dev Rajput



Harsh Bhardwaj



Tanishk Goyal



Vibhu Dubey



Anindya Prithvi



Aditya Pratap Singh



Shivam Gupta



Siya Garg



Ambuj Bhaskar Tiwari



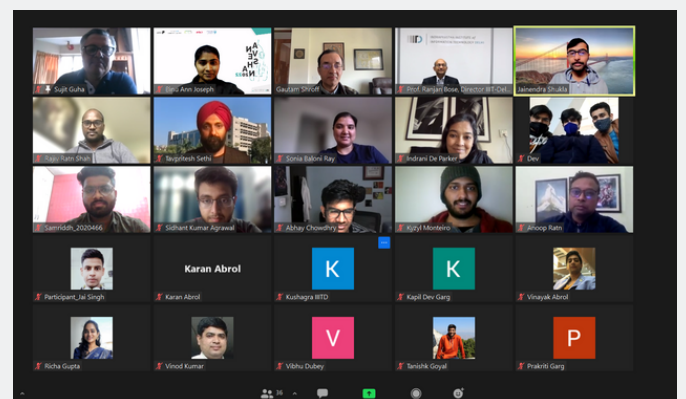
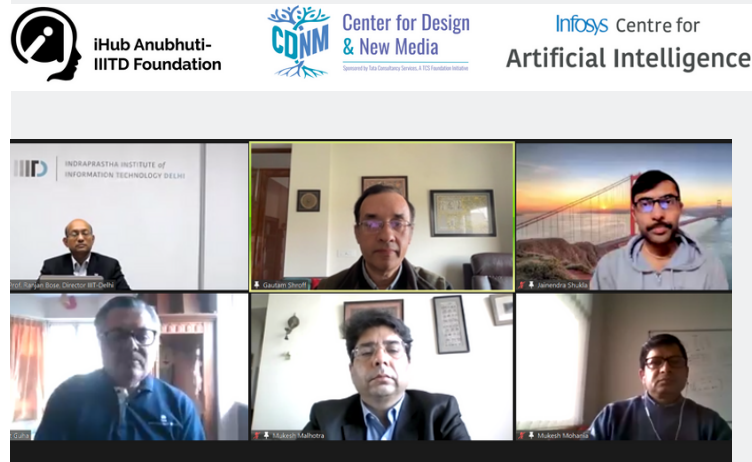
Mehul Arora



Kanishk Goel



Mohammed Kaif



WEBINAR SERIES

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25th January, 2022

Title: AI in Blood Cancer Imaging

Prof. Anubha Gupta

Professor, ECE, IIITD



23rd February, 2022

Title: TransEvolve: A Tale of Transformer and Multi-particle Dynamical Systems

Dr. Tanmoy Chakraborty

Assistant Professor and Ramanujan Fellow, CSE, IIITD

14th March, 2022

Title: Machine Learning and Logic: Fast and Slow Thinking

Prof. Moshe Y. Vardi

Professor, CSE, Rice University



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