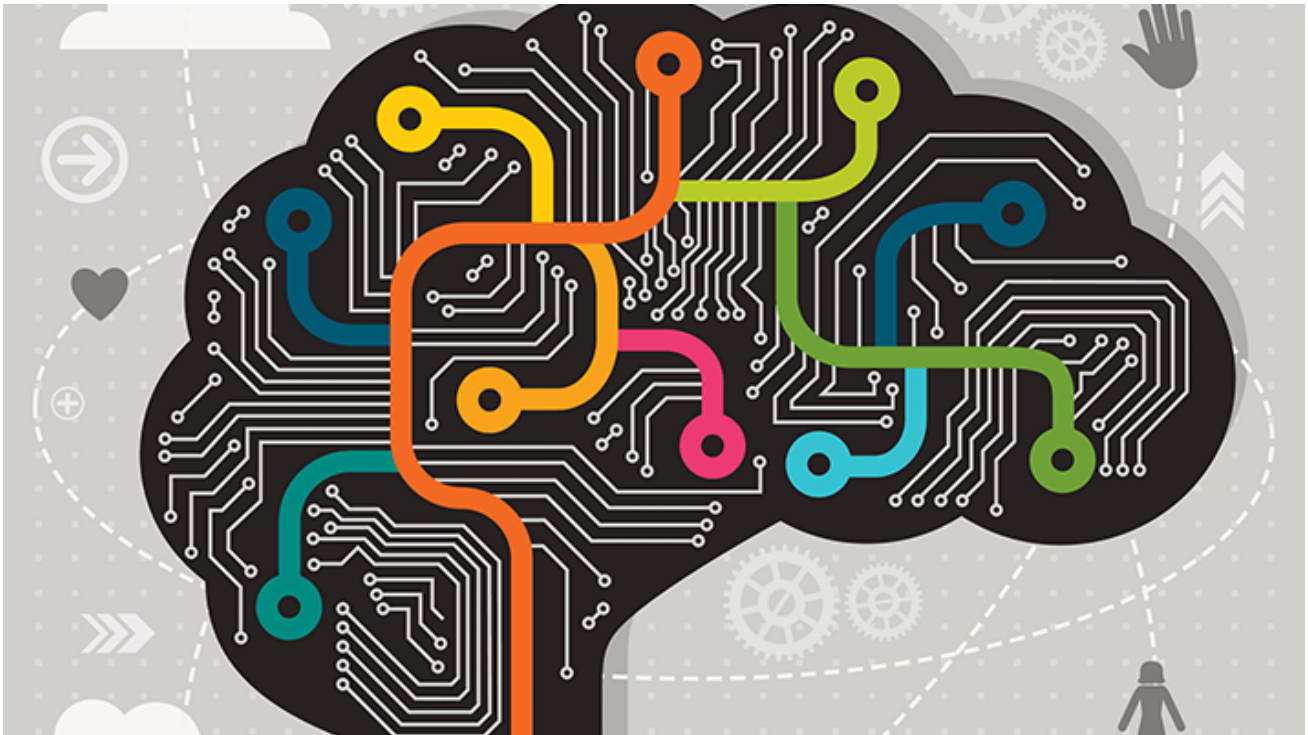


Anubhav: A Newsletter by iHub-Anubhuti

Issue No. 1 | September, 2021



Technology Innovation Hub (TiH) on "Cognitive Computing and Social Sensing" for Interdisciplinary Cyber-Physical Systems (ICPS), called iHub Anubhuti, has been established by Indraprastha Institute of Information Technology Delhi as a Section 8 Company under the aegis of the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) of the Department of Science and Technology, Government of India.



iHub Anubhuti will focus on new knowledge, technology solutions, skilled human resource and an enabling eco-system for entrepreneurship in the field of CPS.



iHub Anubhuti's aims at building a collaboration between industries, academia and government agencies on developing data driven cognitive computing solutions, mainly in verticals - Health, Law Enforcement & Security, Education and Environmental Sustainability.



iHub Anubhuti will also encourage and promote the entrepreneurial activities and start-ups emanating from TiH projects and in the areas of "Machine Learning, Artificial Intelligence and Cognitive Computing & Social Sensing".

Message from Chairman

It gives me great pleasure to introduce to you the newsletter of iHub-Anubhuti IIIT-Delhi.

iHub-Anubhuti – IIITD Foundation is the Technology Innovation Hub set up at IIIT-Delhi. It is an initiative as a part of the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) of the Department of Science and Technology (DST), Government of India.

IIIT-Delhi has rapidly established itself as a premier institute in the country with world-class research expertise focused on solving complex real-world problems. iHub-Anubhuti depicts the Institute's ambitions and capabilities with a vision to create a robust ecosystem for research, skill development, and entrepreneurship.

The administrative team of iHub-Anubhuti comprises experienced and distinguished professionals and IIIT-D faculty members who will pave the way for ground-breaking solutions for the immediate challenges in cognitive computing and social sensing. iHub-Anubhuti is also fortunate to have industry and academic partners as collaborators who will enrich the team with their experience, insights, and support.

This wonderful national-level initiative by DST holds great promise and unlimited possibilities. I am sure various TiHs with complementary expertise will collaborate and cooperate in a manner to create a multiplier effect. I am confident that iHub-Anubhuti will set the bar high and promote technological, entrepreneurial, and human resource development in the field of cognitive computing



Ranjan Bose
*Director, IIITD & Chairman,
iHub Anubhuti-IIITD Foundation*

and social sensing.

I wish the principal investigators of the various projects, the staff, and everyone associated with iHub-Anubhuti all the best for the exciting journey ahead.



Message from Project Director

I am happy to announce the first edition of iHub Anubhuti-IIITD Foundation's newsletter. I sincerely hope that this excellent initiative of a Technology Innovation Hub (TiH) will yield many favorable outcomes for not only IIIT-Delhi, but also for the scientific and technological community at large.

Under the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) formulated by the Government of India, 25 TiHs have been set up across the country in top academic, research and development technical institutes. iHub Anubhuti-IIITD Foundation is the TiH for our institute, with the larger aim of fostering greater collaboration between industry, academia, and government agencies to develop solutions in the area of cognitive computing and social sensing.

With technology being increasingly more pervasive in our lives, new opportunities for exploration and research, especially in interdisciplinary are opening up. Cognitive computing and social sensing, the main areas of work for iHub



Anubhuti, provide great scope for solving complex problems in the world today by keeping the 'human' factor in mind while working on technological solutions. IIIT-Delhi has time and again shown its prowess as one of the best institutes in the broad domain of Computer Science, and especially in the areas of AI, Data Science, and Human-Computer Interaction. I am confident that iHub Anubhuti will make great strides in the verticals of cognitive computing and social sensing and will provide innovative solution for applications in healthcare, education, security, and other critical areas of human development.

I look forward to the journey ahead with iHub Anubhuti-IIITD Foundation, and wish everyone associated with it the best of luck and success ahead!

Dr. Pushpendra Singh
Project Director, iHub Anubhuti-IIITD Foundation

Message from CEO

Welcome to the first edition of our newsletter and I would take this opportunity to talk about iHub Anubhuti, a new company under IIITD. I want to establish this company as one of the most promising hubs for research, innovation, and entrepreneurship.

The endeavor is on (i) Technology Development, (ii) Establishment of Centers of Excellence, (iii) HRD & Skill Development, (iv) Innovation, Entrepreneurship & Start-up Ecosystem and (v) International linkages & collaborations.

The company has been set up to nurture a culture of collaboration among industry, start-ups, academic institutions and government agencies. Aim is to develop data-driven technological advancements for problems pertaining to cognitive computing and social sensing and create financially sustainable ventures out of these programs.

Anubhuti is committed to catapulting public research further and leading India to a unique position by empowering nationwide cognitive computing skills and technologies. Our focus is on four verticals - Health, Law enforcement and Security, Education and Environmental Sustainability.

As we actively pursue new domains, we remain committed to our enduring mission of developing cognitive computing and social sensing skills by supporting researchers, start-ups and industries. We will nurture and foster start-ups that were born out of TiH as a means of promoting the entrepreneurial ecosystem.

An essential part of my vision for the future is to provide a thriving environment for research and innovation and build a platform that we can be proud of. Guided by our mission statement, we will direct all efforts towards addressing wide-ranging societal problems, garnering novel skills and understanding in the field of cognitive computing, and promoting



Mukesh Malhotra
CEO, iHub Anubhuti-IIITD Foundation

entrepreneurship in Cyber-Physical Systems. As we embark on this long journey, I look forward to support your dreams around research and entrepreneurship.

Monthly Webinar Series



Title: "Machine Learning for Healthcare - Cancer to Covid"

Geetha Manjunath
CEO and Co-founder NIRAMAI Health Analytix

July 2021

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Title: "Intelligent Biomedical Image Analysis"

Dr. Sushmita Mitra
*Professor
Machine Intelligence Unit,
Indian Statistical Institute*



Zainul Charbiwala
Co-Founder and CTO, Tricog Health



Title: "Towards Artificial Vikramaaditya: Can Machines Deliver and Explain Fair Judgments?"

Arnab Bhattacharya
Professor, CSE, IIT, Kanpur



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Workshop

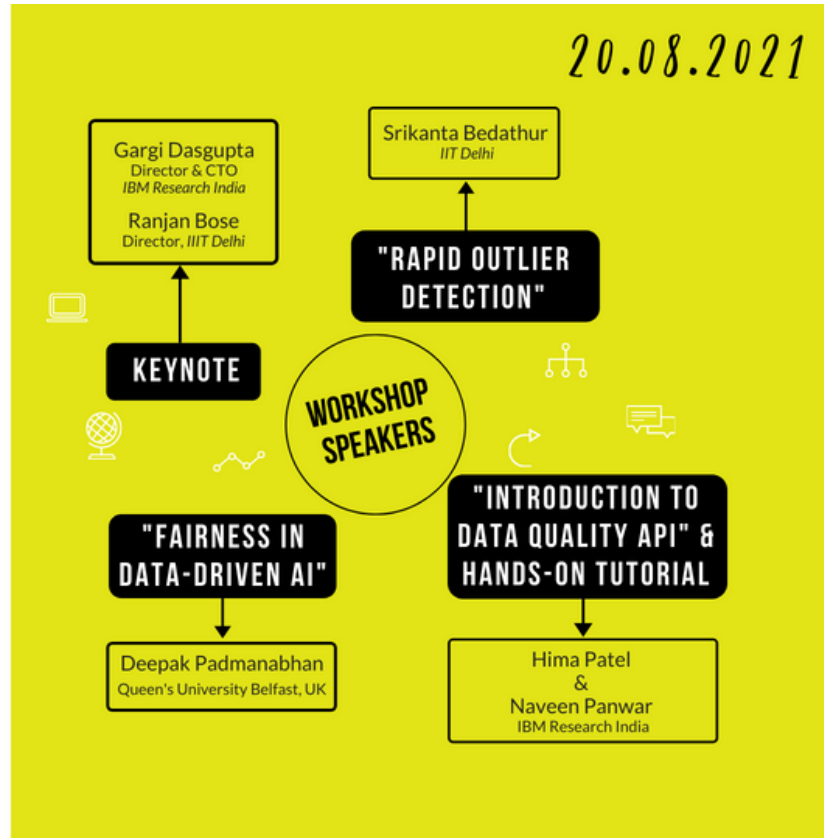
A workshop on "Data Quality for AI", Jointly organized by IBM Research, IIITD & iHub Anubhuti in August 2021

"DATA QUALITY FOR AI"

In the past decade, AI/ML technologies have become pervasive in academia and industry, finding their utility in newer and challenging applications. While there has been a focus to build better, smarter and automated ML models little work has been done to systematically understand the challenges in the data and assess its quality issues before it is fed to an ML pipeline. Issues such as incorrect labels, synonymous categories in a categorical variable, heterogeneity in columns etc. which might go undetected by standard pre-processing modules in these frameworks can lead to sub-optimal model performance.

Data preparation has been called out as one of the most time-consuming step in an AI lifecycle. Since the quality of data is not known at Step 0, when the data is acquired, data preparation becomes an iterative debugging process and becomes more of an art, leveraging the experience of a data scientist. Because the performance of an ML model is only as good as the training data it sees, a systematic analysis of data quality before building AI/ML models is of utmost importance.

The goal of this workshop was to attract researchers working in the fields of data acquisition, data labeling, data quality, data preparation and AutoML areas to understand how the data issues, their detection and remediation will help towards building better models. However, many of the Data Quality metrics are built on complex algorithms which are not trivial to implement. To alleviate this problem, IBM Research had released a set of Data Assessment APIs which can be used directly to assess tabular data. The workshop was hosted a hands-on tutorial for the participants to show the use of these APIs.



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