Announcements

IBM renews collaboration with IIT-B and IISc, Bangalore to drive hybrid cloud & artificial intelligence (AI) innovation including generative AI

India, Bengaluru, September 06, 2023 -- IBM (NYSE: IBM) today renewed its research collaboration with Indian Institute of Technology (IIT), Bombay and Indian Institute of Science (IISc), Bangalore to transform and drive breakthrough innovations in the field of hybrid cloud and artificial intelligence (AI). IIT Bombay joined the IBM AI Horizon Network in 2018 to advance AI research in India and in 2021, IBM and IISc Bangalore launched the IBM-IISc Hybrid Cloud lab to advance research in hybrid cloud technologies and drive breakthrough innovations in this area.

Through the collaboration, IBM aims to drive innovation and provide practical solutions to complex global challenges by tapping the intellectual talent of students, faculty and industry researchers. By pushing the boundaries of knowledge and exploring new approaches, the project seeks to enhance various aspects of technology and contribute to a more advanced and efficient future.

The collaborations will focus on several areas including:

- **Extending the prior research in natural language processing and question answering** , while striving to provide more comprehensive and accurate responses. In terms of performance optimization, the major focus will be on achieving fast and efficient results when performing inferencing on devices such as smartphones and in hybrid cloud environments.

- **Machine learning for time series** involving deep generative AI models for multi-variate data, and self-supervised representation learning models. These innovations can bring the power of foundation models and generative AI to multiple application areas such as health care, Industry 4.0 and smarter cities.
- **Creating sophisticated computer programs that can detect and explain fake news** and half-truths using advanced Artificial Intelligence techniques. The aim is to improve upon the earlier research on biases and trust in AI, making sure that false information is accurately identified and thoroughly explained.
- **Building new technologies to orchestrate and optimize workloads in a hybrid cloud environment, including edge clouds, quantum-classical, and serverless.** The goal will be to leverage observability and analytics capabilities spanning the hybrid multi-cloud environment to efficiently manage resources and seamlessly orchestrate workloads, to improve the performance and reliability of applications.
- **Developing techniques for sustainable computing,** involving devising methods to accurately quantify and optimize carbon emissions for hybrid cloud workloads and studying emerging architectures for their performance-power tradeoff.

"The synergy between the abundant talent in IIT Bombay and a technological leader like IBM can not only expand the horizons of knowledge but also address problems of national importance, such as affordable healthcare, educational outreach, and smart management of growing industrial and urban infrastructure*",* added Prof. Sachin Patwardhan, Dean (R&D), IIT Bombay.

"The engagement with IBM researchers is helping us explore some of the practical dimensions of the research challenges in Cloud platforms and sustainability, and investigate the means to democratize access to quantum hardware in the Cloud for scientific and enterprise applications. Our doctoral students also appreciate the chance to engage with leading researchers and practitioners from IBM Research, "said Prof Yogesh Simmhan, Associate Professor, Department of Computational and Data Sciences, IISc. The collaboration with IISc is led by Prof Simmhan, along with faculty members Dr J Lakshmi (Supercomputer Education and Research Centre), Prof Parimal Parag (Department of Electrical Communication Engineering) and Prof Prathosh AP (Department of Electrical Communication Engineering).

Speaking on the collaborations Dr. Amith Singhee, Director IBM Research India said. "Collaboration fuels innovation, and our collaboration with IIT Bombay and IISc Bangalore underscores the importance of combining diverse expertise. By merging IBM's technological prowess with the cutting-edge research skills of these prestigious institutions, we foster a collaborative ecosystem that pushes the boundaries of scientific discovery. Together, we strive to explore new horizons and address pressing challenges, empowering India's research community to create tangible impact and shape a brighter future for all."

Over the last few years, the collaboration between IBM and IIT Bombay as well as IISc, have yielded significant research outcomes and technological advancements. Spanning topics such as natural language processing, complex question answering, trust and explainability in AI, IT operations, distributed computing, and AI for Code, these collaborations have resulted in numerous research publications, MTech, and PhD theses. For instance, the IBM-IIT-Bombay collaboration led to the use of machine learning for Indian Languages NLP and addressed challenges related to low resource understanding of Hindi language sense, intent, sentiment, and natively understand documents in Hindi.

About IBM

IBM is a leading provider of global hybrid cloud and AI, and consulting expertise. We help clients in more than 175 countries capitalize on insights from their data, streamline business processes, reduce costs, and gain the competitive edge in their industries. More than 4,000 government and corporate entities in critical infrastructure areas such as financial services, telecommunications and healthcare rely on IBM's hybrid cloud platform and Red Hat OpenShift to affect their digital transformations quickly, efficiently, and securely. IBM's breakthrough innovations in AI, quantum computing, industry-specific cloud solutions and consulting deliver open and flexible options to our clients. All of this is backed by IBM's legendary commitment to trust, transparency, responsibility, inclusivity, and service. Visit www.ibm.com for more information.

About IISc

The Indian Institute of Science (IISc) was established in 1909 by a visionary partnership between the industrialist Jamsetji Nusserwanji Tata, the Mysore royal family and the Government of India. Over the last 114 years, IISc has become India's premier institute for advanced scientific and technological research and education. Its mandate is "to provide for advanced instruction and to conduct original investigations in all branches of knowledge as are likely to promote the material and industrial welfare of India." In 2018, IISc was selected as an Institution of Eminence (IoE) by the Government of India, and it consistently figures among the top Indian institutions in world university rankings.

About IIT Bombay

Indian Institute of Technology Bombay, set up in 1958 as the second IIT, is recognised worldwide as a leader in the field of engineering education and research. The Institute was granted the status of 'Institution of Eminence'

by the Ministry of Education (the then Ministry of Human Resources Development) on July 9, 2018. IIT Bombay is reputed for the quality of its faculty and the outstanding calibre of students graduating from its undergraduate and postgraduate programmes. The Institute has 16 academic departments, 31 (Centres/ Programmes/ Academic facilities), three schools and four Interdisciplinary programmes. Over the last six decades, more than 70,000 engineers and scientists have graduated from the Institute. It is served by more than 715 faculty members considered not only amongst the best within the country but also highly recognised in the world for achievements in the field of education and research. IIT Bombay is not only amongst the best in the country but also highly recognised in the world for achievements in the field of education and research. On June 28, 2023, the Quacquarelli Symonds (QS) in their ranking by Subject has ranked IIT Bombay 1st in India and 47th globally in Engineering and Technology. For the first time, IIT Bombay was ranked 149th globally, thus securing our position in the top 150 universities in the QS World University Ranking 2024.

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