

Getting Ready for the Emerging Challenge of Massively Parallel Programming Paradigm

Dr. Vijay Bhatkar, Chancellor, Nalanda University and Chairman Technical Advisory Committee, C-DAC

Abstract: Massively parallel systems with millions of core are going to be the systems of the future. These systems in a cloud infrastructure are likely to be heterogeneous in nature and based on a variety of CPU architectures and accelerators. Engineering such massively parallel systems, particularly keeping in view the power envelope, is itself is a great challenge. But programming such massively parallel systems that can scale to petascale and exascale is going to be an enormous challenge. Hence there is no alternative to developing expert manpower which develop scalable algorithms and codes which can harness the compute power offered by petascale and exascale supercomputing systems. Hence it is important to introduce parallel programming aspects to prospective programmers at a young age, so that by the time they join the industry, they are equipped with required parallel programming mind-set and software development skills. This talk will discuss the current state of HPC education and will suggest future directions for riding on the wave and leveraging on the tremendous computation power that will be required for the emerging applications.

Bio: Dr. Vijay Bhatkar is one of most acclaimed and internationally acknowledged scientists of India. He is best known as the architect of India's national initiative in supercomputing, where he led the development of India's first supercomputer PARAM in 1990, under the technology denial regime. Dataquest Magazine has credited Dr. Bhatkar as one of the 25 pioneers of India's now USD 160 Billion (2017) IT Industry, with exports exceeding USD 100 Billion. Dr. Bhatkar is also widely known for bringing ICT to the masses through a wide range of path-breaking initiatives, such as the celebrated GIST multilingual technology covering India's 22 official languages with 10 diverse scripts that has dissolved the language barrier on computers once for all. Dr. Bhatkar has served as a member of the Scientific Advisory Committee to PM, Member of the Governing Council of CSIR and a member of the IT Task Force constituted by PM in 1998. He is a Life Fellow of IEEE (USA) and Fellow of ACM (USA), besides being Fellow of CSI, INAE, IETE, NASI, MAsC and GES. Dr. Bhatkar has authored/edited over 20 books and 80 technical and research papers and addressed several university convocations, international and national conferences and conventions and public functions.

Among the numerous awards conferred on Dr. Bhatkar, the notable are, Padma Bhushan Award in 2015, Padma Shri Award in 2000, Maharashtra Bhushan Award of 1999-2000, Jindal Prize 2012 for science and technology in the service of society and H.K. Firodia Award in 1996-97 for Life-Time Achievements in Science & Technology. Dr. Vijay Bhatkar has been the Chairman of Board of Governors of IIT-Delhi and is presently the Chancellor of Nalanda University, Chairman, TAC, C-DAC, Member-TAC, NSM, Chairman, Unnat Bharat Abhiyan, Govt. of India, Chief Mentor of Multiversity, and National President of Vijnana Bharati.

