

# Transforming Biology to an Information Science

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## 1. ABSTRACT

Information technology plays a vital role in enabling new science and discovery in biology, transforming biology into an information science. Advances in high throughput and platform technologies in biology present an unprecedented challenge in scale, management, and analysis of biological data. Advances in computing architecture and scale are enabling simulations of complex biological processes at various organizational levels from atomic to cellular and beyond. High performance computing that takes full advantage of massive parallelism is a necessary means to obtain the performance needed to tackle this complexity. This talk will outline research strategy at the intersection of information technology and life sciences, and provide examples of research projects currently being pursued.

## 2. SPEAKER BIOGRAPHY



Ajay Royyuru heads the Computational Biology Center at IBM Research, with research groups engaged in various projects including genomics, protein science, systems biology, and computational neuroscience.

Working with biologists and institutions around the world, he is engaged in research that will advance personalized, information-based medicine. Ajay leads the IBM Research team working with National Geographic Society on the Geographic Project. Ajay has authored numerous research publications and several patents in structural and computational biology.

After his bachelors and masters education in human biology and biophysics from All India Institute of Medical Sciences, New Delhi, Ajay obtained his Ph. D. in molecular biology from Tata Institute of Fundamental Research, Mumbai. He had postdoctoral training at Memorial Sloan-Kettering Cancer Center, New York and a brief stint at scientific software development before joining IBM Research.

Ajay is a member of International Society for Computational Biology, and IBM Academy of Technology.

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