Pediatric Bioengineering: Opportunities and Challenges

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As a subfield of bioengineering, pediatric bioengineering is the development and application of engineering concepts, methods and approaches to improve the health of children through better diagnosis, more effective treatment and prevention of pediatric diseases, especially in underdeveloped countries. Children suffer from diseases of every organ system, arising from both congenital and acquired sources of illness. The unique physiology of a growing child changes over time and the pathophysiology of many pediatric diseases are distinct from adult diseases. This necessitates the development of pediatric bioengineering at Rice to provide a unique interdisciplinary research and educational opportunity for students at both graduate and undergraduate levels. Specific research areas of pediatric bioengineering include (but are not limited to) the diagnosis and treatment of neonatal disorders, congenital heart disease, infectious diseases, pediatric cancers and blood diseases including sickle cell disease, and pediatric neurological diseases. Pediatric bioengineering is expected to generate a major impact to pediatric healthcare and global health, improving the lives of children worldwide and helping train the next-generation leaders in pediatrics and bioengineering.

In this talk Dr. Bao will showcase some recent activities in developing pediatric bioengineering, and discuss the opportunities and challenges. The need to better stimulate and coordinate pediatric bioengineering research and education at Rice/TMC will also be presented.