

## SBMI Special Seminar

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### Emerging Aspects of Personalized Biomedical Data Analysis

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The decreasing cost of DNA sequencing technologies enabled generating whole genomes of thousands of individuals for research and medical purposes. In addition, numerous functional assays that are coupled with sequencing are used to generate large variety of transcriptomic and epigenomic data. We can utilize these data to dissect molecular mechanisms of diseases and develop personalized precision medicine therapies. To reach this goal, we need to explore all the aspects of these rich data sources. In this seminar, I will first present several recent projects that relate to different aspects of genomic data analysis. These encompass three fields; 1) Genomics, 2) Epigenetics, 3) Transcriptomics, where integrative multiscale analysis has revealed important insights into biological data. Specifically, these projects focus on epigenetic regulation of gene expression, multi species comparison of transcription, and analysis of structural variation in cancer genomes. I will then present some of the unforeseen aspects of personalized data analysis regarding genomic privacy. Finally, I will present computational frameworks that can effectively integrate different aspects of the biomedical data analysis. I will review some of the promising future directions, especially from the machine learning literature, for personalized biomedical data analysis and precision medicine. I will also review how new technologies give rise to competing aspects of biomedical data analysis.

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Live Webcast: [go.uth.edu/LiveSeminar](http://go.uth.edu/LiveSeminar)

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