May 15th, 9:00 AM - 10:00 AM

Plenary Talk: Modeling the Folding Patterns of the Human Brain in Development, Health, and Disease

Monica Hurdal
Florida State University

The folding patterns of the human brain are unique across individuals. The folds (gyri) and valleys (sulci) vary dramatically in their shape, size, and extent across individuals. This variability makes it difficult to compare brains from different individuals and to diagnose certain diseases. Interestingly, there is no consensus among neuroscientists as to the origins of this folding variability. I will present some of the models my research group is developing to model the folding patterns of the human brain. These models include a Turing System reaction-diffusion model and a biomechanical model. I will present results that demonstrate some of the parameters that may influence cortical folding patterns during development and the role these parameters may play in certain diseases, such as polymicrogyria.