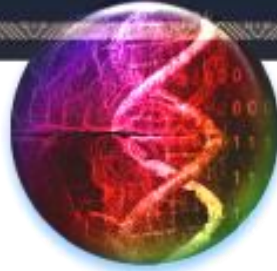


Center for
**Computational
Biology (CCB)**



Presents

Guido Gerig

University of Utah, Scientific Computing and Imaging Institute

Friday, November 7, 2008 at 11 AM

LONI DIVE Theater, 635 Charles E. Young Drive South, Suite 225

***Mapping Early Brain Development
Via Neuroimaging***

Imaging studies of early brain development get increasing attention as improved modeling of the pattern of normal development might lead to a better understanding of origin, timing and nature of morphologic differences in neurodevelopmental disorders. A main goal of our research group is the modeling of the trajectory of early brain development using structural MRI and diffusion tensor imaging (DTI) and statistical analysis of growth patterns in risk groups. This talk will discuss major challenges and current solutions related to scanning and image analysis in neuroimaging studies of young infants. Image registration and segmentation methods need to be adapted to the special nature of the data, which represents low SNR, rapid change of brain size and tissue contrast changes due to myelination and structuring. Tissue growth is analyzed by segmentation of structural MRI, whereas tissue maturation is measured by DTI. Joint analysis of DTI and multi-contrast MRI reveals the importance of a combined framework to fully capture the pattern of early structuring of brain tissue.

Preliminary results from several longitudinal neuroimaging studies of infants followed from birth to 5 years (twins, autistic subjects, offspring of schizophrenics, MVM) will be shown. These demonstrate the potential of pediatric neuroimaging towards a better understanding of growth differences which finally might lead to improved decisions on appropriate therapeutic intervention.

For information, please contact Ivo Dinov, PhD at 310.206.2101

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