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BSCS 621: Topics of Special Interest (Modeling of Biological Systems)

List of Topics for Software Development/Research Proposal

Possible Topics	Selected by
Child Growth	
i) Software to generate growth profile of child (data, sample software, results available)	Malik Shariq Qamar
ii) Software to determine obesity profiles of adult (data, results available)	Syed Haris Hussain
iii) Software to check adult-height formula (mathematical model available, data needs to be collected)	
Heart Model	
iv) Software to validate the relationship of frequencies of phonocardiogram with the size of heart	
v) Software to validate method of determining size and shape of heart from reading obtained from stethoscope in 2D	
vi) Software to validate method of determining size and shape of heart from reading obtained from stethoscope in 3D	
Model of Spinal Column, Posture and Gait of Children	
vii) Generate spinal column in 3D from frontal and sagittal projections	
viii) Adapt # (7) for measurements using moiré fringe topography	
ix) Adapt # (8) for different postures of children	
x) Back-asymmetry quantification using moiré fringe topography	Atta Raza
xi) Back-asymmetry quantification using rasterstereography	
xii) Adapt for facial asymmetry using moiré fringe topography and rasterstereography	
xiii) Adapt for shoe-sole asymmetry using moiré fringe topography and rasterstereography	
xiv) Feet-sole asymmetry by moiré fringe topography and rasterstereography	
xv) Generate 3D maps of the human spinal column in each of the 4 phases of gait and relate them using edge-based algorithm	Muhammad Salman
xvi) Software for the calibration, the accuracy and the precision of moiré and raster systems	
xvii) Software to determine the Cobb angle from moiré topograph of back	

Updated: May 1, 2006