

DEPARTMENT OF PHYSICAL THERAPY
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Associate Professor

I. General Research Interest

- A. Innovative Intervention in Treating Children with Cerebral Palsy
 - 1. Virtual reality
 - 2. Humanoid robots
 - 3. Functional strength training
 - 4. Rhythmic auditory cues and other music components
- B. Early Intervention in Treating High-Risk Infants
 - 1. Mobile reinforcement in training infant's leg movements
 - 2. Reinforcement in training infant's reaching movements
- C. Low-Cost Indicators in Detecting Developmental Delay
 - 1. Using atypical kicking movements to detect developmental delay
 - 2. Using atypical reaching or object exploratory behaviors to detect developmental delay
- D. Systematic Review and Meta-Analysis Methodologies

II. Current Research Projects

- A. Examining the effectiveness of virtual reality and functional strength training in children with cerebral palsy
- B. Validating kicking parameters in detecting infants' motor delay
- C. Comparing the feedback from robots or human agents in reaching kinematics in children with and without cerebral palsy
- D. Building a norm database of reaching kinematics using Super Pop VR™

III. Research Skills

- A. Quantitative research methodologies, including statistical analyses
- B. Developing, implementing and evaluating interventions
- C. Measurement reliability and validity

D. Systematic review and meta-analysis methodologies