Sensorimotor Learning Lab (P.I.: Hyosub Kim)
Studying the cognitive processes supporting skilled action

Methods:

Motor psychophysics

Clamped visual feedback

Research interests:
• Interactions between adaptation and reward learning
• How practice affects motor planning
• How the brain combines multiple sources of information

Recent results:

\[
\begin{align*}
\dot{x}^{(n+1)} &= A \cdot x^{(n)} + U(e^{(n)}) \\
y^{(n)} &= \left(1 - V_l^{(n)}\right) \cdot x_n + V_l^{(n)} \cdot V_d^n \\
\dot{x}^{(n+1)} &= \gamma_A \cdot A \cdot x^{(n)} + \gamma_U \cdot U(e^{(n)}) \\
\dot{x}_{SPE}^{(n+1)} &= A_{SPE} \cdot x_{SPE}^{(n)} + U_{SPE} \left(e_{SPE}^{(n)}\right) \\
\dot{x}_{TE}^{(n+1)} &= A_{TE} \cdot x_{TE}^{(n)} + U_{TE} \left(e_{TE}^{(n)}\right) \\
\dot{x}_{Total}^{(n)} &= x_{SPE}^{(n)} + x_{TE}^{(n)}
\end{align*}
\]
Activities to Promote Movement & Cognition

- Parent-child interaction
- Handling
- Positioning
- Play with objects
- Motor & cognitive outcomes (language, social-emotional)

Tools for (Re)habilitation

- Exoskeletal garments
  - Playskin Lift™
  - Playskin Air™
  - Hug n’ Move
  - Ankle support
- Assistive & rehabilitative effects

Activity- & Technology-Based Pediatric (Re)habilitation
Michele A. Lobo, PT, PhD - Move To Learn Innovation Lab, Super Suits
FUNctional Fashion & Wearable Technology
Multisensory Integration

Plasticity

Jared Medina – Associate Professor
Psychological and Brain Sciences