

SHP Student Interns for Research and Scholarly Activities Project Proposal Form

Instructions:

Please fill each box to the right of the required fields, obtain the required signature and return via email to Michele Sisco (mcoral@shp.rutgers.edu) by **March 24, 2025**.

If you are sending attachments, please ensure your contact information is added to all your forms.

Faculty Contact Information:

Date submitted:	
Faculty Name:	Qinyin Qiu
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Project Detail:

Project Title: (56 characters max)	Evaluate the Rehabilitation Outcomes in Cerebral Palsy (CP) through Gamified Multidisciplinary Interventions: Integrating Speech and Upper Extremity Motor Therapy.
Hypothesis:	Therapy delivered through gamified multidisciplinary interventions will have better rehabilitation outcomes in children with CP.
Description: (Include design, methodology, data collection, techniques, data analysis to be employed, evaluation and interpretation methodology for research component)	<p>The intern will work alongside the team to assist with conducting clinical study. Team consists of Dr. Michelle Chang, PhD, SLP and Dr. Jigna Patel, PT, MHS, PhD.</p> <p>Approach: Fifteen children with CP will be recruited based on specific inclusion criteria, such as age (8-17 years), mild to moderate dysarthria, MACS levels I-III, GMFCS levels I-IV, and mild to moderate arm spasticity (Modified Tardieu Scale 0-3). Exclusion criteria include severe vision impairment and dyskinetic CP or spastic diplegia. Participants will be stratified by age and MACS levels and randomized into three groups: Group 1 (voice-only games), Group 2 (hand/arm-only games), and Group 3 (voice and hand/arm games). Screening will be conducted remotely, while pre-treatment assessment and system training will occur in person. Over 8 weeks, participants will play assigned games at</p>

	<p>home for 1 hour/session, 3 sessions/week. Post-treatment assessment will follow, with retention testing 6 weeks later.</p> <p>Measurable Outcomes: Primary speech outcomes include intelligibility measures (listener transcription accuracy and EoU ratings). Primary motor outcomes include the Melbourne Assessment 2, Box and Blocks, and Handheld Dynamometry. Secondary speech outcomes include speech rate, vowel space area, and sound pressure level, while secondary motor outcomes include kinematic assessments of hand and wrist movements and their accuracy.</p> <p>Listener Intelligibility Testing: Speech intelligibility will be assessed by 45 adult listeners (3 per participant) who will transcribe utterances and rate EoU. Listeners must pass hearing screenings and have no history of speech, language, or cognitive disorders.</p> <p>Statistical Analysis: Repeated Measures ANOVA will evaluate within-group changes across three testing times, while Multivariate ANOVA will compare differences between groups. Adherence will be assessed via weekly active time and the System Usability Scale, and engagement will be measured through post-intervention questionnaires.</p>
<p>Specific Student Responsibilities:</p>	<p>An intern's responsibilities in this project can include the following:</p> <ol style="list-style-type: none"> 1. Participant Recruitment and Screening: <ul style="list-style-type: none"> • Assist in identifying and recruiting eligible participants based on inclusion and exclusion criteria. • Help conduct remote screening sessions (e.g., via Zoom) to assess participants' suitability for the study. 2. Data Collection: <ul style="list-style-type: none"> • Support pre-treatment, post-treatment, and retention assessments by assisting with administration of clinical tests. • Collect and organize data from speech and motor therapy sessions, including game performance metrics and engagement data. 3. System Training and Support: <ul style="list-style-type: none"> • Assist in training participants and their caregivers on how to use the gamified therapy system. • Provide technical support during the intervention period to ensure participants can access and use the system effectively. 4. Monitoring Adherence: <ul style="list-style-type: none"> • Track participants' adherence to the intervention schedule (e.g., session frequency and duration). • Maintain logs of participants' weekly activity and engagement with the system. 5. Data Management: <ul style="list-style-type: none"> • Organize and input collected data into

	<p>spreadsheets or databases for analysis.</p> <ul style="list-style-type: none"> • Ensure data accuracy and confidentiality in compliance with ethical guidelines. <p>6. Engagement and Usability Assessment:</p> <ul style="list-style-type: none"> • Distribute and collect user questionnaires to evaluate engagement and usability. • Summarize feedback from participants and caregivers. <p>7. Data Analysis Support:</p> <ul style="list-style-type: none"> • Assist in preparing data for statistical analysis (e.g., cleaning and organizing datasets). • Support preliminary analysis under the guidance of the research team. <p>8. Documentation and Reporting:</p> <ul style="list-style-type: none"> • Document study progress, including participant adherence, technical issues, and observations during assessments. • Contribute to the preparation of reports, presentations, or manuscripts summarizing the study findings. <p>9. General Research Support:</p> <ul style="list-style-type: none"> • Attend team meetings and provide updates on assigned tasks. • Assist with any additional tasks related to the project, such as literature reviews or preparing materials for presentations.
Start / end date of project:	June 2 nd - July 25 th , 8 weeks

<p>WHAT OTHER EDUCATIONAL OPPORTUNITIES ARE AVAILABLE TO STUDENTS? (e.g., journal club, seminars, clinic, rounds)</p> <p>WHERE DO YOU PLAN TO PRESENT OR PUBLISH THE FINDINGS WITH THE STUDENT? (e.g., national or state meetings, newsletter or journal, SHP poster day)</p>	<p>Students will be given the chance to collaborate in a lab focused on creating technology-assisted rehabilitation systems. They will acquire hands-on experience by working alongside engineers and researchers to conduct human studies including recruiting and training study subjects.</p> <p>Data collected during the intervention will be presented at various conferences. Peer reviewed manuscripts will be prepared to disseminate study results.</p>
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CHECK ALL APPROPRIATE BOXES BELOW AND PROVIDE REQUESTED INFORMATION.

This project is: clinical laboratory behavioral survey educational

Other: please specify _____

This project involves the use of human subjects (including chart review, retrospective studies and questionnaires).

Pending Approved IRB Protocol Number Pro2024001772

IRB approval must be obtained by June 2025

 PT, DPC, PhD.

Signature of Department Chair

March 19, 2025
Date