

# Customized Robotic Ankle Exoskeleton for Foot Drop

Principal Investigator  
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## PROJECT OVERVIEW

This project focuses on the development of a customized robotic ankle exoskeleton designed to improve mobility for patients with foot drop, a condition that significantly impacts gait and overall function in both pediatric and adult populations. By combining rehabilitation robotics with patient-specific design, the system aims to restore more natural ankle movement during walking. The approach moves beyond traditional passive devices by enabling active assistance, supporting improved gait mechanics and enhanced quality of life for individuals with neuromuscular impairments.

### The Challenge

Foot drop impairs walking, increases fall risk, and reduces mobility. Current solutions like AFOs provide stability but restrict natural ankle movement, limiting function and everyday activities, especially for pediatric patients.

### The Innovation

A customized robotic ankle exoskeleton that actively assists movement, supporting foot clearance while preserving natural push-off and enabling more efficient, patient-specific gait.

### Potential Impact

Improves mobility, reduces fall risk, and enhances quality of life while advancing next-generation, adaptive assistive technologies for patients with gait impairments.

#### INSTITUTION

Georgia Institute of  
Technology

#### FUNDING

\$50,000

#### STATUS

Completed  
Research Ongoing

#### TIMELINE

2023–2025