Thesis Project Portfolio

Tongue-Driven Wheelchair for Quadriplegics: Exploring Assistive Technology's Impact on Those with Disabilities

(Technical Report)

Movement Impairments From A Social Perspective: How Assistive Movement Devices Impact Those With Motor Disability

(STS Research Paper)

An Undergraduate Thesis

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Bachelor of Science, School of Engineering

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Department of Electrical and Computer Engineering

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Prospectus

Sociotechnical Synthesis

Spinal cord injuries (SCI) present significant challenges to individuals' mobility and independence, with global estimates indicating a substantial impact on quality of life. This paper works with the multifaceted assistive technology landscape for individuals with SCI, examining the societal, technological, and intersectional dynamics at play. Using empirical data and theoretical frameworks, including the Social Construction of Technology (SCOT) model and Hughes' concept of technological momentum, the paper looks into how assistive mobility devices evolve through innovation and competition, shaping societal perceptions and experiences of disability. The paper investigates the development and implications of alternative mobility solutions, such as tongue-driven systems and brainwave-controlled interfaces. These emerging technologies offer promise in enhancing independence and inclusion for individuals with SCI, yet they also pose usability, affordability, and social acceptance challenges.