

Abstract Submitted  
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**Theoretical Modeling of Applied Push Forces on Wheelchairs** EDWARD HAMILTON, JONATHAN MOCK, SURYA DONTY, LeTourneau University — Most wheelchairs are designed around the assumption of either self-propulsion by a user or motorized operation, as opposed to an assistant pusher. These methods of generating applied force are associated with design choices that are inapplicable or even counterproductive for assistant pushers. These distinctions become more important for users in environments where motorization is impractical, such as less developed countries where paved surfaces are too infrequent or unreliable to allow for the use of a powered wheelchair. We consider the general dynamical problem of pushing a wheelchair over a rough surface with dissimilar friction interactions between the front and rear wheels, based on the variance of different structural parameters.

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