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David C. Szurley*, 405 N. Ebenezer Rd., Florence, SC 29501. *Optimal Control of Projectile Motion with Sensitivity-Based Optimization.*

Many real-world problems may be formulated as optimal control problems. In these, we change some aspect of a system in order to obtain a desired outcome. There are many solution techniques for optimal control problems. We will consider sensitivity-based optimization. This technique may be described as quantifying the effect that changing some aspect of the system has on the final outcome.

We will formulate an optimal control problem for equations governing projectile motion. Sensitivity-based optimization will then be used to solve this problem. Finally, advantages and disadvantages of sensitivity-based optimization will be discussed, and future efforts will be mentioned. (Received September 22, 2011)