

Operations research applications in transportation engineering

The Laboratory for Advanced Operations Research and Resilience Applications (LAORA) at the RIDER Center (<http://rider.engineer/>) has several undergraduate research positions available in advanced operations research applications for transportation systems. Currently, LAORA is working on a large-scale research project sponsored by the Florida Department of Transportation related to safety improvements at highway-rail grade crossings, where highway segments intersect a railroad at the same elevation (i.e., level crossings). This project aims to develop a new optimization model and effective solution algorithms to select level crossings for closures, with the objective of maximizing the total benefits from these closures (such as safety benefits, reduction in delays, reduction in operational and maintenance costs, etc.). Undergraduate researchers will closely work with the LAORA PhD candidates and postdocs to explore the capabilities of advanced optimization algorithms to solve the most challenging decision problems in rail transportation and other applications.

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