

Strategic Optimization in Practice: From Mobile Stroke Unit Deployment to Ship Pipe Design

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Abstract

Optimization models play a key role in efficient decision making for health and energy. In this talk, I present a series of studies that apply and extend optimization techniques to address three real-world challenges: capacity planning in national vaccination programmes, strategic deployment of mobile stroke units, and routing of ship pipelines in the energy transition.

Beside the practical side of the last problem, I will highlight its mathematical complexities and explain how we solve those in a theoretical follow-up study. Additionally, I will highlight the societal impact of each project, which was executed in close collaboration with industry partners. Together, these applications illustrate how optimization can bridge theory and practice in critical public and industrial settings.