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Mathematics of wildlife smuggling interdiction

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The illegal trade of wildlife is estimated to run into hundreds of millions of dollars. It is an international problem that exploits both enforcement loopholes and corruption, and it is a direct threat to the survival of plant and animal species. Smugglers transport wildlife and their derivatives from sources to destinations across the globe. They are able to choose the route they take to move these commodities across international borders. The location where a smuggler enters a country is important as limited biosecurity resources are able to be placed at these locations. The locations and amount of biosecurity resources must be allocated intelligently. Quantitative analysis and mathematical methods are required to provide insights into illegal wildlife trade networks. In this talk, I will discuss a novel two player game on a network between smugglers and biosecurity agencies which looks at how best to allocate resources to intercept illegal trade. This framework will then be applied to some networks motivated by data.

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