CSCRL FALL FORUM

RISK AS A COMPETITIVE ADVANTAGE: WINNING IN AN UNCERTAIN WORLD
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ABSTRACT

THE SHADOW PRICE OF YOUR OPERATIONS: TRANSFORMING RISK INTO PROFIT

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In operations management, the concept of shadow price refers to the exchange rate of risk and its impact on an operational objective such as revenue, cost, or profit. In this talk, we illustrate this concept by showing you exactly how to calculate the shadow price of your own operational risks and convert them into profit levers. We'll walk through three high-impact applications:

- A supply chain network model that you can adapt to your operation with minimal data requirements to make your supply chain resilient to demand and production shocks, with an example applied to the global oil market network.

- A data-center scheduling model for AI inference that deals with overload risk, where we present the optimal policy that incorporates forecasting to mitigate this risk, minimizing churn and operational costs while maximizing Lifetime Customer Value.

- A resource positioning optimization problem (such as warehouses or vehicles) to service random demand, where we present a scalable forecast-driven algorithm used to perform ambulance scheduling in NYC (+400 vehicles serving +8M people). These methods help you optimize your resource positioning to be resilient to random demand by incorporating forecast information into the positioning problem.

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