

OSU DEPARTMENT OF INTEGRATED SYSTEMS ENGINEERING

OPERATIONS RESEARCH

The Integrated Systems Engineering Department at The Ohio State University hosts a unique program in operations research that bundles world-class expertise in optimization, stochastic processes and simulation, and data analytics and statistics. This expertise provides our graduates with a deep understanding of current modeling and decision-making problems in industry. Our approach to teaching and research enables our students to develop models, algorithms, and analytical methodologies that are applicable to real-world problems and that can provide the most appropriate solutions to such problems.

Scope: Operations research tools including data analytics, data-driven methods, decision analysis, econometric methods, Markov processes, optimization, queuing theory, simulation, and statistics. We apply these tools to a wide variety of fields, including cyber security, energy systems, forecasting, markets, production and scheduling, supply chain analysis, and water resource management.

Approach: We take a highly interdisciplinary approach that integrates operations research tools for the modeling and analysis of industrial systems and enables the best decision-making process.

Our contributions to Operations Research are concerned with understanding industry systems, their operations and long-term planning, and methodological and algorithmic advances to achieve the best decision-making process. We make sure that our work is grounded in the real world and serves the needs of the industry and of society as a whole.



Industry Focus Areas

- Cyber security
- Energy systems
- Forecasting
- Markets
- Production and scheduling
- Sustainability
- Supply chain analysis
- Water resource management

Tools

- Data analytics
- Data-driven methods
- Decision analysis
- Econometric methods
- Markov processes
- Optimization
- Queuing theory
- Simulation
- Statistics



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