

## Engineering Solutions with Analytics: Applications in Electricity Generation, Semiconductor Manufacturing, and Organ Transplants

Joel Sokol, Professor  
Director, Master of Science in Analytics  
Director, Online Master of Science in Analytics  
H. Milton Stewart School of Industrial and Systems Engineering  
Georgia Inst. Tech.

12:30 – 1:30 pm, Tuesday, February 9, 2021

Online: <https://ccny.zoom.us/j/89302757661>

**Abstract:** Analytics/data-science is opening new avenues for the solution of engineering problems, both traditional and emerging. In this talk, we describe our application of analytics in three areas: electricity generations, semiconductor manufacturing, and organ transplantation. In all three areas, our analytics-based approach has teamed with engineering knowledge to provide planning insights and decision support that would not have been possible before: real-time power generation decisions that consider fine atmospheric effects on air quality and health, dynamic routing methods that predict and avoid traffic jams in a high-complexity manufacturing environment, and predictive models to allow better-informed medical decision-making regarding organ transplants. In addition to our research results, we will take a few minutes at the end of the talk to describe how Georgia Tech is also leading the way in analytics education, including an at-scale Master's degree with thousands of students.



**Biography:** Joel Sokol is founding Director of Georgia Tech's interdisciplinary Master of Science in Analytics degree (on-campus and online) and Professor in the H. Milton Stewart School of Industrial and Systems Engineering. His primary research interests are in applied analytics and data science in sports, medicine, logistics, manufacturing, and other areas. Dr. Sokol's research has won the EURO Management Science Strategic Innovation Prize and been a finalist for the Cozzarelli Prize, and has been successfully used by professional sports teams and leagues, medical decision-makers, industry, NGOs, and the military. His LRMC method is an industry leader and has attracted widespread popular attention. As a teacher, Dr. Sokol has won recognition from NAE, IISE, INFORMS, and EURO; served two terms as INFORMS Vice President of Education; and is the recipient of Georgia Tech's highest awards for teaching and student impact. Dr. Sokol's PhD in operations research is from MIT, and his bachelor's degrees in mathematics, computer science, and applied sciences in engineering are from Rutgers University.