

MATHEMATICAL MOMENTS

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Making Art Work

Great art looks good no matter where you're standing, but for art with perspective there's a special point where your view of the scene will match that of the artist. He or she uses geometry to maintain perspective, and geometry to find exactly where a dimensional surface expands into the printout, unfortunately, your eye is not from the red dot. This helps explain why large-screen movie theaters...



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Trimming Taxiing Time

It's hard to choose which part of air travel is the most fun—body scans, removing your shoes, fighting for the armrest, middle seats—but waiting on the runway is a less desirable candidate. Controllers often let jets leave the gate when ready, regardless of existing runway lines, which can lead to long waits. Mathematical models that rely on probability and dynamic programming estimate travel time to the runway and options open to them, allowing controllers to see the effect that the different models have demonstrated the ability to shorten runway wait times, which reduces congestion and saves tons of fuel.



The models are very accurate: always predicting the number of aircraft in runway queues to within two. And despite their complexity (they involve many variables, such as weather conditions and runway configuration), the models also are very quick: controllers can get real-time updates on anticipated queues every 15 minutes. The models aren't yet in use everywhere, but they may be soon because with an air traffic management system that is expected to be stretched to capacity in about five years, analysts say managing departures is a good way to improve airport and airline efficiency.

For More Information: "A Queuing Model of the Airport Departure Process," *Transportation Science*, Ioannis Simakakis and Harma Bakirliker, Vol. 50, No. 1 (2015).

7 ways math is making a difference

Preparing Peasants



Dis-playing the Game of Process



Trimming Taxiing Time



Making Art Work



Explaining Rainbows



Maintaining a Balance



Farming Better



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