Data You Can Count On

Creating a newer, faster model for performing complex estimations

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"Count data," the number of times an event occurs within a given time interval, poses a number of statistical modeling challenges with widespread applications in web analytics, epidemiology, economics, finance, operations and other fields.

In 2018, Paul College associate professor of decision sciences Tevfik Aktekin developed a new class of statistical model that performs complex estimations roughly 20 times faster than other commonly used estimation methods. Aktekin dubbed the methodology the Multivariate Poisson-Scaled Beta (MPSB) and says it "can be applied

to many settings where there is a need for fast and efficient demand forecasting of multiple series."

Applications that stand to benefit from this methodology include:

- those predicting future web page clicks in web analytics, such as Amazon, Google, Facebook, Yahoo;
- those predicting the number of future rides in ride-sharing platforms such as Uber and Lyft;
- those relying on virtual customer contact services, such as call centers and online help desks, which need estimates for inter-day customer arrivals for narrow time intervals; and
- policy making that focuses on predicting the number of individuals who possess a common trait for resource allocation decisions.

Best of all, says Aktekin, "Our methodology, as well as our code, are publicly available."

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