

Statistics Seminar
Department of Mathematics and Statistics

DATE:	Thursday, April 16, 2026
TIME:	1:30pm - 2:30pm
LOCATION:	WH 100E
SPEAKER:	Zhongyuan Zhao, Binghamton University
TITLE:	On the quasi-stationary distribution of the Shiryaev-Roberts recurrence driven by exponential data

Abstract

We investigate the phenomenon of quasi-stationarity exhibited by the Generalized Shiryaev-Roberts (GSR) change-point detection statistic designed to detect an increase in the mean of a sequence of independent exponentially distributed random variables. We derive lower- and upper-bounds for the GSR statistic's quasi-stationary distribution as well as for the associated stationary "killing rate". A short numerical study demonstrates that all of the obtained bounds are sufficiently tight for practical purposes. We conclude with an application of the obtained bounds to quickest change-point detection: we translate the bounds for the killing rate into bounds for the Average Run Length (ARL) to false alarm of Pollak's (1985) randomized variant of the GSR detection procedure.

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