Notation

Single-Server Service Node

a_i	arrival time of job i
d_i	delay of job i in the queue
b_i	time that job i begins service
s_i	service time of job i
w_i	wait of job i (queue and service)
c_i	departure time of job i
r_i	interarrival time between jobs $i-1$ and i
$l(t)$	number of jobs in the service node at time t
$q(t)$	number of jobs in the queue at time t
$x(t)$	number of jobs in service at time t
λ	arrival rate
ν	service rate
ρ	traffic intensity, λ/ν
β	feedback probability

Simple Inventory System

l_{i-1}	inventory level at the start of interval i
o_{i-1}	amount ordered at time $t = i - 1$
d_i	demand during time interval i
s	minimum inventory level
S	maximum inventory level
$\overline{u}$	order frequency
δ_i	delivery lag for interval i

Random-Number Generation

m	modulus
a	multiplier
$\mathcal{X}_m$	set of integers $\{1, 2, \ldots, m-1\}$
$g(x)$	iterative equation, $g(x) = ax \bmod m$
p	period length

Statistics

n	sample size
$\overline{x}$	sample mean
s^2	sample variance
s	sample standard deviation
$\hat{f}(x)$	empirical pdf
$\hat{F}(x)$	empirical cdf
c	sample covariance
c_j	lag j sample autocovariance

Next-Event Simulation

t	simulation clock time
τ	terminal (end of simulation) time

Random Variables

X	a random variable
$f(x)$	probability density function (pdf) of X
$F(x)$	cumulative distribution function (cdf) of X
$F^*(u)$	inverse distribution function (idf) of X
$F^{-1}(u)$	inverse distribution function (idf) of X
$\mathcal{X}$	set of possible values (support) of X
μ	population mean, $E[X]$
σ^2	population variance, $E\left[(X-\mu)^2\right]$
σ	population standard deviation
$\Phi(x)$	cdf for a *Normal*$(0, 1)$ random variable

Nonstationary Poisson Processes

$\lambda(t)$	event-rate function
$\Lambda(t)$	cumulative event-rate function
$\Lambda^{-1}(y)$	inverse cumulative event-rate function
$\lambda_{\max}$	event-rate upper bound

Output Analysis

t^*	critical value for *Student* distribution
t^*_∞	critical value for *Normal*$(0, 1)$ distribution
$1-\alpha$	nominal confidence-interval coverage
w	confidence-interval half-width
I	value of an integral
k	number of batches for batch means
b	batch size for batch means

Input Modeling

γ_2	coefficient of variation
γ_3	skewness
$x_{(i)}$	order statistic i
$\boldsymbol{\theta}$	vector of unknown parameters
$\hat{\boldsymbol{\theta}}$	vector of parameter estimates
$L(\boldsymbol{\theta})$	likelihood function
D_n	Kolmogorov–Smirnov test statistic
$\hat{\lambda}(t)$	estimated event-rate function
$\hat{\Lambda}(t)$	estimated cumulative event-rate function