

Najpogostejše celoštevilске slučajne spremenljivke

Slučajna spremenljivka	Porazdelitev	Momenti	Rodovna funkcija
Bernoullijeva, $B(p)$	$P(X=1)=p, P(X=0)=1-p=q$	$EX=p, \text{var}(X)=pq$	$G_X(s)=(1-p)+ps$
Binomska, $\text{Bin}(n,p)$	$P(X=k) = \binom{n}{k} p^k (1-p)^{n-k}, k=0, 1, \dots, n$	$EX=np, \text{var}(X)=npq$	$G_X(s) = ((1-p)+ps)^n$
Hipergeometrijska, $H(n,B,R)$	$P(X=k) = \binom{B}{k} \binom{R}{n-k} / \binom{B+R}{n}$	$EX = \frac{Bn}{B+R}, \text{var}(X) = \frac{BRn(B+R-n)}{(B+R)^2(B+R-1)}$	
Poissonova, $\text{Poisson}(\lambda)$	$P(X=k) = \frac{\lambda^k}{k!} e^{-\lambda}, k=0,1,\dots$	$EX=\lambda, \text{var}(X)=\lambda$	$G_X(s)=e^{-\lambda(1-s)}$
Geometrijska, $\text{Geom}(p)$	$P(X=k)=(1-p)^{k-1}p, k=1, 2, \dots$	$EX=1/p, \text{var}(X)=(1-p)/p^2$	$G_X(s) = \frac{ps}{1-(1-p)s}$
Negativna binomska $W_r(p)$	$P(W_r = k) = \binom{k-1}{r-1} p^r (1-p)^{k-r}, k=r, r+1, \dots$	$EX=r/p, \text{var}(X)=r(1-p)/p^2$	$G_X(s) = \left(\frac{ps}{1-(1-p)s} \right)^r$

Najpogostejše zvezne slučajne spremenljivke

Slučajna spremenljivka	Gostota	Momenti	Karakteristična funkcija
Normalna, $N(\mu, \sigma^2)$	$f_X(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$	$EX=\mu, \text{var}(X)=\sigma^2$	$\phi_X(t) = e^{i\mu t - \frac{1}{2}\sigma^2 t^2}$
Večrazsežna normalna, $N(\underline{\mu}, \Sigma)$	$f_{\underline{X}}(\underline{x}) = \frac{1}{(2\pi)^{n/2} \sqrt{\det \Sigma}} e^{-\frac{1}{2}(\underline{x}-\underline{\mu})^T \Sigma^{-1}(\underline{x}-\underline{\mu})}$	$EX=\underline{\mu}, \text{var}(X)=\Sigma$	$\phi_{\underline{X}}(t) = e^{i\mu t - \frac{1}{2}t^T \Sigma t}$
Enakomerna, $I(a, b)$	$f_X(x) = \frac{1}{b-a}, x \in [a, b]$	$EX = \frac{a+b}{2}, \text{var}(X) = \frac{(b-a)^2}{12}$	$\phi_X(t) = \frac{e^{ibt} - e^{iat}}{i(b-a)t}$
Eksponentna, $\exp(\lambda)$	$f_X(x) = \lambda e^{-\lambda x}, x \geq 0$	$EX = \frac{1}{\lambda}, \text{var}(X) = \frac{1}{\lambda^2}$	$\phi_X(t) = \frac{\lambda}{\lambda - it}$
Gama, $\Gamma(a, \lambda)$	$f_X(x) = \frac{1}{\Gamma(a)} \lambda^a x^{a-1} e^{-\lambda x}, x \geq 0$	$EX = \frac{a}{\lambda}, \text{var}(X) = \frac{a}{\lambda^2}$	$\phi_X(t) = \left[\frac{\lambda}{\lambda - it} \right]^a$
Beta, $B(p, q)$	$f_X(x) = \frac{1}{B(p,q)} x^{p-1} (1-x)^{q-1}, x \in [0,1]$	$EX = \frac{p}{p+q}, \text{var}(X) = \frac{pq}{(p+q)^2(p+q+1)}$	
Cauchyjeva	$f_X(x) = \frac{1}{\pi(1+x^2)}$		$\phi_X(t) = e^{- t }$