$$X^{ ext{ctrl}} = Z^{ ext{ctrl}} \left(U^{ ext{ctrl}}
ight)^{\mathsf{T}} \;\;,\;\; z^{ ext{ctrl}}_{ij} \sim \mathcal{N}(0,1)$$
 $X^{ ext{case}} = Z^{ ext{case}} \left(U^{ ext{case}}
ight)^{\mathsf{T}} \;\;,\;\; z^{ ext{case}}_{ij} \sim \mathcal{N}(0,1)$ $Y^{ ext{norm}} = \begin{bmatrix} X^{ ext{ctrl}} \\ --- \\ X^{ ext{case}} \end{bmatrix}$

 $Y^{\mathsf{unif}} = \Phi\left(Y^{\mathsf{cont}}\right)$