$$
\begin{aligned}
y_i &\sim Poisson(\lambda_i) \\
ln(\lambda_i) &= a + f_{c[i],g[i]} + \tilde{f}_{c[i],p[i],g[i]} \\
\\
a &\sim \mathcal{N}(0, 5) \\
\\
\boldsymbol{f}_{c[i]} &\sim GP(\mathbf{0}, \boldsymbol{K}_{\boldsymbol{\rho},\boldsymbol{\alpha}}) \\
\rho &\sim InvGamma(10, 1000) \\
\alpha &\sim \mathcal{N}(0, 1) \\
\\
\tilde{\boldsymbol{f}}_{c[i],p[i]} &\sim GP(\mathbf{0}, \boldsymbol{K}_{\tilde{\boldsymbol{\rho}},\tilde{\boldsymbol{\alpha}}}) \\
\tilde{\rho} &\sim InvGamma(10, 1000) \\
\tilde{\alpha} &\sim \mathcal{N}(0, 1)
\end{aligned}
$$