

SKETCH OF THE ALTERNATING SQP FOR FITTING POISSON TOPIC MODELS

PETER CARBONETTO*

Given an $n \times p$ matrix of counts X , with entries x_{ij} , our aim is to fit a Poisson model of the counts,

$$(0.1) \quad p(x) = \prod_{i=1}^n \prod_{j=1}^p \text{Poisson}(x_{ij}; \lambda_{ij}),$$

in which the Poisson rates are given by the mixture $\lambda_{ij} = \sum_{k=1}^K l_{ik} f_{jk}$. Therefore, the Poisson model is specified by a $p \times K$ matrix F with entries f_{ik} (the “factors”) and an $n \times K$ matrix L with entries l_{ik} (the “loadings”).

Here’s a citation: [1].

REFERENCES

- [1] D. M. BLEI, A. Y. NG, AND M. I. JORDAN, *Latent Dirichlet allocation*, Journal of Machine Learning Research, 3 (2003), pp. 993–1022.

*Dept. of Human Genetics and the Research Computing Center, University of Chicago, Chicago, IL