Stochastic Block Model Prior with Ordering Constraints for Gaussian Graphical Models

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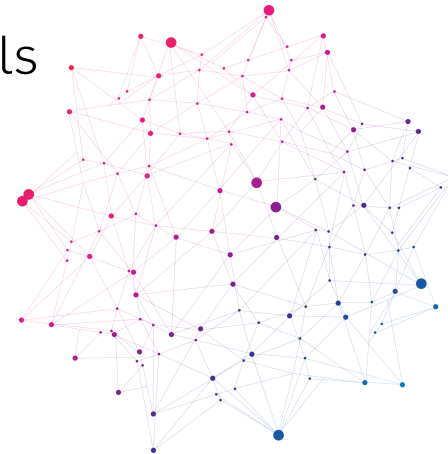

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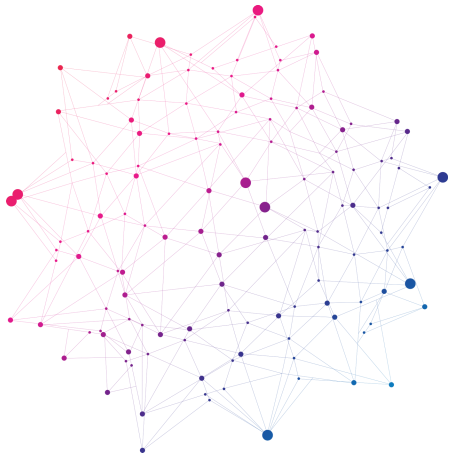

THE MODEL

OUR MODEL

Goal: given a set of n data with p variables, infer the block structure of their variables without knowing the number of groups.

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The model:

$$
\begin{aligned}
\boldsymbol{y}_1, \ldots, \boldsymbol{y}_n \mid \boldsymbol{K} &\overset{\text{iid}}{\sim} \mathcal{N}_p(\mathbf{0}, \boldsymbol{K}^{-1}) \\
\boldsymbol{K} \mid G &\sim \text{G-Wishart}(b, D) \\
P((i,j) \in E \mid \boldsymbol{z}, Q) &= Q_{z_i z_j}, \text{ independent} \\
Q_{rs} \mid \boldsymbol{z} &\overset{\text{ind}}{\sim} \text{Beta}(a, b), 1 \leq r \leq s \leq H \\
\rho_p &\sim \mathcal{L}(\rho_p)
\end{aligned}
$$

SAMPLING STRATEGY

GIBBS SAMPLER

formula del Gibbs sampler

BIRTH AND DEATH ALGORITHM FOR UPDATING THE GRAPH

slide su bdgraph

GENERAL STEPS FOR UPDATING THE PARTITION

slide su two-step move to update the partition: add/delete move (with general formula, no details) + shuffle

PROPOSAL RATIO

slide su proposal ratio

ADAPTIVE STEP

non ho ben capito , vuole solo una slide sulla parte adattiva? forse è un po' troppo breve per una slide sola

NEXT STEPS

NEXT STEPS

- Praying that the code works

MAIN REFERENCES

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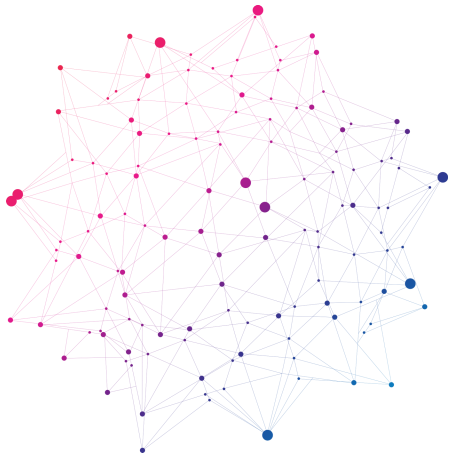
Thank you!

Any questions?



EXTRA CONTENT