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Supervising Topic Models with Gaussian Processes

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Highlights

- We propose the first model that can supervise Latent Dirichlet Allocation (LDA) by Gaussian Processes (GPs).
- LDA and GP are jointly trained by a novel variational inference algorithm that adopts ideas form Deep GPs.
- Differently from Supervised LDA (sLDA), our model learns non-linear mappings from topic activations to document classes.
- By virtue of this non-linearity, our model outperforms s LDA, as well as a disjointly trained cascade of LDA and GP in three real-world data sets from two different domains.

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