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**Bayesian linear regression onto data-driven dictionaries with  
application to music transcription**

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In this work, we describe a linear regression technique where features of the dictionary (the collection of explanatory variables) are learnt from the data itself. Our Bayesian setting allows to add regularization constraints on both the explanatory variables and the regressors that fit physical properties of sound. More precisely, smoothness constraints can be imposed on the first ones while time-persistency and/or sparse constraints can be imposed on the second ones. When applied to music, we observe that the retrieved explanatory variables bear a semantic value and that the overall process yields a compact data-driven object-based transcription of the original signal.