Binary information geometry: some theory and applications

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Binary information geometry (BIG) is a particular case of computational information geometry (CIG) which provides and exploits a universal space of models for binary random vectors, an exponentially high-dimensional extended multinomial family. Overall, BIG finds natural and fruitful application in a range of important areas, including notably: binary graphical models, logistic regression and Boltzmann machines. A variety of results are presented and illustrated by examples.