Errata for the paper: Good Error-Correcting Codes based on Very Sparse Matrices

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(a) In the statement of theorem 1 [2, page 403],

> a desired block error probability ϵ

should be replaced by

> any desired block error probability ϵ.

(b) In the proof of theorem 2 (page 406), the sentence

> For large t it is evident (c.f. Fig. 1) that $\left(\lambda H_2^e(w/L) + \frac{1}{M}\log q_{00}^{(wt)}\right)$ attains its largest value at $w = w^*$.

should read

> For large t it is evident (c.f. Fig. 1) that, if it is positive for any $w \leq w^*$, the term $\left(\lambda H_2^e(w/L) + \frac{1}{M}\log q_{00}^{(wt)}\right)$ attains its largest value at $w = w^*$.

(c) It should have been noted that theorems 3 and 4 (page 403) were originally proved by Gallager [1] using an ensemble of codes which is a subset of the ensemble used in [2] and has better distance properties.

(d) A factor of 2^{-M} was omitted from the argument of the logarithm in equation (43).

I thank Kamil Zigangirov for drawing attention to these errors.

References

1. R. G. Gallager. *Low Density Parity Check Codes*. Number 21 in Research monograph series. MIT Press, Cambridge, Mass., 1963.

2. D. J. C. MacKay. Good error correcting codes based on very sparse matrices. *IEEE Transactions on Information Theory*, 45(2):399–431, 1999.

Biography

David MacKay is a Reader in the Department of Physics at Cambridge University. He obtained his PhD in Computation and Neural Systems at the California Institute of Technology. His interests include construction and implementation of hierarchical Bayesian models that discover patterns in data, development of probabilistic methods for neural networks, and the design and decoding of error correcting codes.