Erratum: Uniform Object Generation for Optimizing One-class Classifiers

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Editors: Nello Cristianini, John Shawe-Taylor and Bob Williamson

In the description of the algorithm for generating uniform samples in a hypersphere, an error is present. Step 4. of the algorithm (page 161):

4. Rescale ρ^2 by $r' = (\rho^2)^{\frac{2}{d}}$ such that r' is distributed as $r' \sim r^d$ for r between 0 and 1.

$$r' = \left(\rho^2\right)^{\frac{2}{d}} = \left(X_d^2(\|\mathbf{x}\|^2)\right)^{\frac{2}{d}}$$

should be replaced by:

4. Rescale ρ^2 by $r' = (\rho^2)^{\frac{1}{d}}$ such that r' is distributed as $r' \sim r^d$ for r between 0 and 1.

$$r' = \left(\rho^2\right)^{\frac{1}{d}} = \left(X_d^2(\|\mathbf{x}\|^2)\right)^{\frac{1}{d}}$$

Acknowledgments

I would like to thank John Platt for showing us this error.