

Correction to: Semi-supervised AUC optimization based on positive-unlabeled learning

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Correction to: Mach Learn <https://doi.org/10.1007/s10994-017-5678-9>

On page 7, 4.2 Variance reduction, the third line of the equation needs to be corrected as follows:

$$\sigma_{\text{NN}}^2(f) = \text{Var}_{\text{NN}}[\ell(f(\mathbf{x}^N, \bar{\mathbf{x}}^N))],$$

Footnote 4 needs the following correction:

Var_{PN} , Var_{PP} , and Var_{NN} are the variances over $p_{\text{P}}(\mathbf{x}^{\text{P}})p_{\text{N}}(\mathbf{x}^{\text{N}})$, $p_{\text{P}}(\mathbf{x}^{\text{P}})p_{\text{P}}(\bar{\mathbf{x}}^{\text{P}})$, and $p_{\text{N}}(\mathbf{x}^{\text{N}})p_{\text{N}}(\bar{\mathbf{x}}^{\text{N}})$, respectively. $\text{Cov}_{\text{PN,PP}}$, $\text{Cov}_{\text{PN,NN}}$, $\text{Cov}_{\text{PU,PP}}$, and $\text{Cov}_{\text{NU,NN}}$ are the covariances over $p_{\text{P}}(\mathbf{x}^{\text{P}})p_{\text{N}}(\mathbf{x}^{\text{N}})p_{\text{P}}(\bar{\mathbf{x}}^{\text{P}})$, $p_{\text{P}}(\mathbf{x}^{\text{P}})p_{\text{N}}(\mathbf{x}^{\text{N}})p_{\text{N}}(\bar{\mathbf{x}}^{\text{N}})$, $p_{\text{P}}(\mathbf{x}^{\text{P}})p(\mathbf{x}^{\text{U}})p_{\text{P}}(\bar{\mathbf{x}}^{\text{P}})$, and $p_{\text{N}}(\mathbf{x}^{\text{N}})p(\mathbf{x}^{\text{U}})p_{\text{N}}(\bar{\mathbf{x}}^{\text{N}})$, respectively.

On page 26, Appendix C: Proof of variance reduction, the last equation needs correction:

$$\begin{aligned} \text{Var}[\widehat{R}_{\text{PNU}}^{\gamma}(g)] &= \frac{(1-\gamma)^2}{n_{\text{P}}n_{\text{N}}}\sigma_{\text{PN}}^2(g) + \frac{\gamma^2\theta_{\text{N}}^2}{n_{\text{N}}^2\theta_{\text{P}}^2}\sigma_{\text{NN}}^2(g) + \frac{(1-\gamma)\gamma}{\theta_{\text{P}}n_{\text{N}}}\tau_{\text{PN,NU}}(g) \\ &\quad - \frac{\gamma^2\theta_{\text{N}}}{\theta_{\text{P}}^2n_{\text{N}}}\tau_{\text{NU,NN}}(g) - \frac{(1-\gamma)\gamma\theta_{\text{N}}}{\theta_{\text{P}}n_{\text{N}}}\tau_{\text{PN,NN}}(g) \\ &= (1-\gamma)^2\psi_{\text{PN}} + \gamma^2\psi_{\text{NU}} + (1-\gamma)\gamma\psi_{\text{NN}}. \end{aligned}$$

The original article has been corrected.

The original article can be found online at <https://doi.org/10.1007/s10994-017-5678-9>.

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