

Erratum to: “A control systems engineering approach for adaptive behavioral interventions: illustration with a fibromyalgia intervention” [*Translational Behavioral Medicine*, Volume 4, Issue 3, pp 275–289]

Sunil Deshpande,¹ Daniel E. Rivera,¹ Jarred W. Younger,² Naresh N. Nandola^{1,3}

Erratum to: Behav. Med. Pract. Policy Res.
DOI 10.1007/s13142-014-0282-z

The purpose of this note is to correct typographical errors in Deshpande et al. [2014] that were introduced during the final publishing process. Each of these errors is noted in reference to page numbers from the printed version of the paper (Volume 4, Issue 3, pp. 275–289 of *Translational Behavioral Medicine*).

1. Equation (2) on page 279 shows a linear difference equation. It should be read as follows:

$$\begin{aligned} y(k) + a_1 y(k-1) + \dots + a_{n_a} y(k-n_a) \\ = b_{11} u_1(k-n_k) + \dots + b_{n_b 1} u_1(k-n_k-n_b+1) + \dots \\ + b_{1i} u_i(k-n_k) + \dots + b_{n_b i} u_i(k-n_k-n_b+1) + \dots \\ + b_{1n_u} u_{n_u}(k-n_k) + \dots + b_{n_b n_u} u_{n_u}(k-n_k-n_b+1) \\ + e(k) \end{aligned}$$

2. Equation (6) on page 284 shows the finite-horizon optimization problem. It should be read as follows:

$$\begin{aligned} \min_{\{u(k+i)\}_{i=0}^{m-1}} J \triangleq \sum_{i=1}^p (y(k+i) - y_r)^T Q_y (y(k+i) - y_r) \\ y_{\min} \leq y(k+i) \leq y_{\max}, \quad 1 \leq i \leq p \\ u_{\min} \leq u(k+i) \leq u_{\max}, \quad 0 \leq i \leq m-1 \\ \Delta u_{\min} \leq \Delta u(k+i) \leq \Delta u_{\max}, \quad 0 \leq i \leq m-1 \end{aligned}$$

The online version of the original article can be found at <http://dx.doi.org/10.1007/s13142-014-0282-z>.

3. The text on the first sub-column of page 286 has incorrect in-line equations corresponding to the performance metrics. The updated text should read as follows:

The performance of these interventions is measured by the tracking error $J_e = \sum_{k=0}^{N-1} (y(k) - \gamma_r)^2$, total change in drug dosage $J_{\Delta u} = \sum_{k=1}^{N-1} \Delta u(k)^2$ and total amount of drug dosage consumed in the intervention $J_u = \sum_{k=0}^{N-1} u(k)$.

4. Finally, on page 286, the variable f_a mentioned in the text has been misspecified as f^a .

References

Deshpande S, Rivera DE, Younger JW, Nandola NN. A control systems engineering approach for adaptive behavioral interventions: illustration with a fibromyalgia intervention. *Trans Behav Med Pract Policy Res.* 2014; 4(3): 275-289. doi: 10.1007/s13142-014-0282-z.

¹Control Systems Engineering Laboratory, School for Engineering of Matter, Transport, and Energy, Arizona State University, Tempe, AZ 85287-6106, USA

²Neuroinflammation, Pain and Fatigue Laboratory, Department of Psychology, University of Alabama at Birmingham, Birmingham, AL 35294, USA

³ABB Corporate Research Center, Bangalore, India

Correspondence to: D Rivera
daniel.rivera@asu.edu

Cite this as: *TBM* 2014;4:439
doi: 10.1007/s13142-014-0294-8