August 24, 2017

Dr. Peter L. Strick,

You effortlessly clicked or tapped to open this cover letter—yet how your brain controls the many muscles of even one finger **is not understood.**

To understand the functions of our bodies in health and disease, we must reverse-engineer muscle redundancy, the way vertebrate brains control the numerous muscles in our limbs. By tackling such a longstanding problem, we are excited to present a new approach to the high-dimensionality of neuromuscular learning and control.

Included, please find our biologically and statistically sound theory, which wholeheartedly confronts the high-dimensional control problem the brain faces, and competently reconciles today’s three dominant theories of neuromuscular control—Optimization, Synergistic, and Probabilistic Control.

This Article serves to put in perspective the merits and limitations of current theories across neuromechanics and evolutionary biology and, in so doing, it inspires new hypotheses and research directions. As such, this novel approach, which we call **Feasibility Theory**, will inspire formerly disparate fields to interweave and advance.

Each of the following prominent scientists is a contemporary leader in these different approaches to neuromuscular control. They would, therefore, be excellent reviewers to provide you with a rigorous and fair evaluation of our work.

|  |  |
| --- | --- |
| Emanuel Todorov, Ph.D.  Associate Professor, Computer Science & Engineering University of Washington College of Engineering | Box 353925  Seattle, WA 98195  (206) 616-3568  [todorov@cs.washington.edu](mailto:todorov@cs.washington.edu) |
| Matthew Tresch, Ph.D.  Associate Professor of Biomedical Engineering & Physical Medicine and Rehabilitation  Northwestern University | 2145 Sheridan Road; Tech M313  Evanston, IL 60208-3107  (312) 503-1373  [m-tresch@northwestern.edu](mailto:m-tresch@northwestern.edu) |
| Marco Santello, Ph.D.  Professor and Director of School of Biological and Health Systems Engineering  Arizona State University | P.O. Box 879709  Tempe, AZ 85287-9709  (480) 965-8279  [marco.santello@asu.edu](mailto:marco.santello@asu.edu) |
| John W. Krakauer, Ph.D.  Professor of Neurology, Neuroscience, & Physical Medicine and Rehabilitation  Johns Hopkins University School of Medicine | 600 N. Wolfe Street; Pathology Rm 210  Baltimore, MD 21287  (410) 955-9313  [jkrakau1@jhmi.edu](mailto:jkrakau1@jhmi.edu) |

Please do not hesitate to contact me should you require additional information.

Very sincerely yours,



Francisco J. Valero-Cuevas, PhD

*Corresponding Author, and on behalf of Brian Cohn, May Szedlák, PhD, and Bernd Gärtner, PhD*