Topic Editor

Nature Neuroscience

February 22, 2017

Included, please find the Original Article entitled “The high-dimensional structure of feasible muscle activations reconciles alternative approaches to motor control.” In it, we explore the strict functional relationship between forces and neurology. While we can measure which motor patterns are used by an animal, there exists a gap: while three theories of motor control predominate the field—Optimal Control, Synergistic Control, and Bayesian Integrative Control—there is no integrative theory that clarifies how each of these theories perform on static force production with an arbitrary tendon-driven limb. Our Article introduces a full-dimensional visualization and quantification of *every way* a finger can generate a given force, empowering impactful research to flourish at the seam of all three sectors. This Article represents a proud step for motor control, and we foresee further papers that extend upon this useful method, specifically in orthopedic and neurological conditions that affect motor function in aging populations and stroke patients.

We sincerely hope you will consider sending this work for review by the most prominent experts in the field of neuromuscular function. Each of the following pioneered a distinctive angle of motor control that is integral to the field’s understanding.

|  |  |
| --- | --- |
| 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 |
| Matt Tresch  Associate Professor, Biomedical Engineering  Northwestern University | 2145 Sheridan Road  Tech M313  Evanston, IL 60208-3107  [m-tresch@northwestern.edu](mailto:m-tresch@northwestern.edu) |
| Lena Ting  Professor, Wallace H. Coulter Department of Biomedical Engineering Emory University and Georgia Institute of Technology | 313 Ferst Drive NE  U.A. Whitaker Building. Room 3111  Atlanta , GA 30332-0535  [lting@emory.edu](mailto:lting@emory.edu) |

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

Very sincerely yours,

Francisco J. Valero-Cuevas

*Corresponding Author,*

*and on behalf of Brian Cohn, May Szedlák, Komei Fukuda, and Bernd Gärtner*