

# Nigel Stepp

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## Education

*Ph.D., Perception, Action, & Cognition*, In progress (expected Spring 2010)  
University of Connecticut  
Storrs, CT

*B.S., Materials Science & Engineering*, May 2001  
Carnegie Mellon University  
Pittsburgh, PA

**Professional Societies** International Society for Ecological Psychology, Institute of Electrical and Electronics Engineers

**Research Interests** Emergent Computation, Anticipatory Systems, Applied Linear Algebra

## Professional Experience

06/2003–06/2005 Software Developer, IMAKE Financial Consulting, Inc.  
05/2001–05/2002 Software Developer, United States Steel

**Teaching Experience** Research Methods Laboratory, Introduction to Programming

**Prospective Courses** Statistics, Time-series Analysis, Matlab/General Programming, Sensation & Perception, Motor Control, Nonlinear Dynamics

## Technical Skills

**Programming Languages** AWK, C/C++, C#, Fortran, Haskell, Java, Matlab, Python, Perl, UNIX Shells, x86 Assembly

**Algorithms** EMG analysis, Motion tracking analysis, Nonlinear time-series analysis, Relative coordination, Symmetry transformations, Voice activity detection

**Hardware and Software** Computer algebra systems, Electromagnetic motion tracking, IR controlled robotics, Goniometric motion tracking, Simulink, Surface EMG

## Review Activity

Journal of Experimental Psychology: Human Perception & Performance, 2008

Psychonomic Bulletin & Review, 2009

## Publications

Moreno, M., Stepp, N. & Turvey, M. T. (in preparation). Whole body lexical decision.

Chemero, A., Stepp, N. & Turvey, M. T. (under review). Philosophy for the Rest of Cognitive Science. *Topics in Cognitive Science*.

Stepp, N. & Turvey, M. T. (under review). Strong Anticipation and Direct Perception: Towards a formal connection. *Ecological Psychology*.

Stepp, N. & Turvey, M. T. (2010). On Strong Anticipation. *Cognitive Systems Research*, 11, 148–164.

Stepp, N. (2009). Anticipation in feedback-delayed manual tracking of a chaotic oscillator. *Experimental Brain Research*, 198, 521–525.

Stepp, N. & Frank, T. D. (2009). A data-analysis method for decomposing synchronization variability of anticipatory systems into stochastic and deterministic components. *European Physical Journal B: Condensed Matter Physics*, 67, 251–257.

Stephen, D. G., Stepp, N., Dixon, J. A. & Turvey, M. T. (2008). Strong anticipation: Sensitivity to long-range correlations in synchronization behavior. *Physica A*, 387, 5271–5278.

Stepp, N. & Turvey, M. T. (2008). Anticipating synchronization as an alternative to the internal model. *Behavioral and Brain Sciences*, 31, 216–217.

## Invited Colloquia

Stepp, N. (Sep, 2009). Strong anticipation in physical and biological systems. University of Cincinnati.

## Conference Presentations

Stepp, N. (Aug, 2009). Circadian synchronization: dynamical account of a ‘representation-hungry’ problem. Dynamics in Cognition, Storrs, CT.

Stepp, N. (Mar, 2009). Synchronizing with the future of a chaotic time series, New England Sequencing and Timing. New Haven, CT.

Stepp, N. (Aug, 2007). Strong anticipation, weak anticipation, and predictive homeostasis. Dynamics in Cognition, Storrs, CT

Stepp, N. & Turvey, M. T. (Jul, 2007). Strong anticipation, weak anticipation, and ecological theory. International Conference on Perception and Action. Yokohama, Japan.

## **Posters**

Stepp, N. (2009). Anticipation in feedback-delayed manual tracking of a chaotic oscillator.

Stepp, N. & Frank, T. D. (2008). Method for determining strength of coupling and fluctuating forces in anticipatory systems.

## **CESPA Colloquia Series**

Stepp, N. (Feb, 2009). Axiomatic construction of the Ecological Event.