

Joseph W Norman | Curriculum Vitae

Date of Birth	6 th September 1985	Phone	(407) 340 4945
Nationality	United States	Email	joe.w.norman@gmail.com

Education

2009-2014 PhD Complex Systems and Brain Sciences - Florida Atlantic University
Dissertation: *A Theory for the Visual Perception of Object Motion*
Academic Advisor: Dr. Howard Hock

2004-2009 BS Biology, Minor in Philosophy - University of Central Florida

Employment

May 2014 - Present New England Complex Systems Institute - 210 Broadway Suite 101, Cambridge, MA
Postdoctoral Fellow

Supervisor: Dr. Yaneer Bar-Yam

Researching collective behavior, systemic risk, rare events, state stability, and dynamic patterns in individual and population health. Teaching and supervising at NECSI Summer and Winter Schools.

2008 - 2009 CHI Systems, Inc. - 12000 Research Parkway Suite 120, Orlando, FL
Research Associate

Supervisor: Dr. Jennifer Fowlkes

Developed software requirements for sem-automated training systems for small military teams with a focus on distributed cognition and teamwork in an information-rich environment. Conducted cognitive work analyses of expert domains with attention to the embeddedness of agents and the multilevel nature of the task environment.

Publications

Norman, J., Bar-Yam, Y. (2016). Special Operations Forces: A Global Immune System?. *arXiv:1602.05474*.

Norman, J., Bar-Yam, Y., Read, R., Taleb, N. (2015). Climate Models and Precautionary Measures. (comment). *Issues in Science and Technology*, 31(4).

Taleb, N., Read, R., Douady, R., **Norman, J.**, Bar-Yam, Y. (2014). The Precautionary Principle. *arXiv:1410.5787*.

Norman, J. (2014). A Theory for the Visual Perception of Object Motion. (dissertation).

Norman, J., Hock, H., Schöner, G. (2014). Contrasting Accounts of Direction and Shape Perception in Short-Range Motion: Counterchange Compared with Motion Energy Detection. *Attention, Perception and Psychophysics*, 76(5), 1350-1370.

Berger, M., Faubel, C., **Norman, J.**, Hock, H., Schöner, G. (2012). The Counter-Change Model of Motion Perception: An Account Based on Dynamic Field Theory. *ICANN'12 Proceedings of the 22nd international conference on Artificial Neural Networks and Machine Learning*, 1, 579-586.

Norman, D. O., **Norman, J.** (2009). Sense and Avoid: Does scanning work as we teach it?. *Mentor*, 11(9).

Posters and Presentations

Norman, J. (2015). Self-limiting Morphogenesis. *Conference on Complex Systems*. (talk)

Norman, J., Hock, H. (2013). The Detection of Counterchange, Not Motion Energy, Accounts for Coherent Motion Perception in Random-dot Cinematograms. *VSS Annual Meeting*. (poster)

Norman, J., Hock, H. (2012). The Recovery of Shape from 3rd-order Counter-change Specified Motion vs. 1st-order Motion Energy. *VSS Annual Meeting*. (poster)

Norman, J. (2011). A Bistable Counterchange Third-order Motion Detector. *Michael Turvey Symposium/25th Anniversary of the Center for Complex Systems and Brain Sciences*, Florida Atlantic University, Boca Raton, FL.

Norman, J., Hock, H., Schöner, G. (2011). A Bistable Counterchange Detector for the Perception of Third-Order Motion. *VSS Annual Meeting*. (poster)

Computational and Analytic Skills

■ Computational Skills

Python
Matlab
Javascript
D3
MongoDB
Pandas
Git

■ Miscellaneous

Machine Learning
Dimensionality Reduction
Cluster Analysis
Network Analysis
Spatial Scan Statistics
Nonlinear Dynamical Systems
Agent Based Modeling
Cellular Automata
Information Theory
Probability Theory

Teaching

2016 - Present **Lecturer**
Data analytics - *New England Complex Systems Institute*
Supervisor: Dr. Yaneer Bar-Yam

Teaching data analytics, from data acquisition, through management, analysis, interpretation, and visualization. Focus on large and high-dimensional datasets ("Big Data").

- 2015 - Present** **Lecturer**
 Complex Physical, Biological and Social Systems - *New England Complex Systems Institute*
 Supervisor: Dr. Yaneer Bar-Yam
 Teaching about self-organization of patterns of behavior in complex systems. Supervising student projects applying learned concepts and techniques.
- 2009 - 2014** **Teaching Assistant**
 Introduction to Psychology - *Florida Atlantic University*
 Supervisor: Dr. James Jakubow
 Responsible for tutoring students during office hours, administering and grading exams and student work.
- Summer 2012** **Course Developer and Instructor**
 Introduction to Programming in Matlab - *Florida Atlantic University*
 Supervisor: Dr. David Wolgin
 Summer short course designed to introduce basic and practical programming concepts to graduate students with little to no experience. Satisfactory completion certificates awarded by the Department of Psychology.

Additional Education and Fellowships

- June 2016** **Real World Risk Management Certificate Course**
 Real World Risk Institute, LLC
 Completed certificate program on managing risk in multiple domains with a focus on buffering against extreme events.
- Fall 2015** **United States Special Operations Command (USSOCOM) Postdoctoral Fellowship**
 The Donovan Group
 Developed a theory of special operations forces as a component of a multiscale military theory.
Funded by USSOCOM
- Winter 2014** **New England Complex Systems Modeling and Networks Winter School** - Cambridge, MA
 Instructors: Dr. Hiroki Sayama and Dr. Dan Braha
 Developed adaptive network model of epidemic spreading on a scale-free network with heterogeneous distribution of adaptive edges.
Funded by Florida Atlantic University
- Summer 2013** **Visiting Student at Ruhr-Universität Bochum** - Bochum, Germany
 Supervisor: Dr. Gregor Schöner
 Developed neural field models of motion perception. Contributed to COSIVINA Matlab toolbox for implementing and visualizing dynamic neural fields.
Funded by Ruhr-Universität Bochum and Florida Atlantic University

Summer 2011 **Neuronal Dynamics Approaches to Cognitive Robotics** - Guimarães, Portugal
Instructors: Dr. Gregor Schöner and Dr. Estela Bicho
Developed a novel dynamic neural field model for (musical) sequence learning and reproduction in a robotic arm.
Funded by EUCOGII

Summer 2011 **Non-invasive Brain-Computer Interface study abroad course** - Tübingen, Germany
Instructor: Dr. Silke Dodel
Analyzed EEG data from neurofeedback experiments (PCA, ICA, time-frequency analysis, phase-synchronization, coherence). Aided undergraduate students in developing Matlab pipelines for data analysis
Funded by Florida Atlantic University

Other Interests

- **Drums, Guitar, Music Theory**
- **Snowboarding**
- **Climbing**
- **Hiking**

References available upon request