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Experience

<i>The American University</i>	(2013-present)	Professorial Lecturer
Former Department Chairs: Jeffery Adler, Joshua Lansky Current Department Chair: Stephen Casey		
<i>The Johns Hopkins University</i>	(2013-present)	Visiting Scholar
Collaborator: <i>Noah J. Cowan</i>	(2011-2013)	Associate Research Scientist
<i>Yale University</i>	(2009 – 2011)	Associate Research Scientist
Collaborator: Michael Hines		
<i>The Johns Hopkins University</i>	(2006 – 2009)	Postdoctoral Fellow
Co-Mentor: Eric Fortune Co-Mentor: Noah Cowan		
<i>The University of Maryland</i>	(2005 – 2006)	Research Associate
Co-Mentor: John Jeka	(2003 – 2005)	Faculty Research Assistant
Co-Mentor: Tim Kiemel		
<i>George Mason University</i>	(1998)	Laboratory Technician
Supervisor: Steven Schiff		
<i>Cornell University</i>	(1997)	Graduate Teaching Assistant
Instructor on Record: Al Schatz		
<i>Cornell University</i>	(1996 – 2002, intermittent)	Graduate Research Assistant
Advisor: John Guckenheimer		
<i>Contracted to:</i>		
<i>Natl Oceanic & Atmospheric Admin</i>	(1992 – 1993)	Student Consultant: (Database)
Supervisor: Don Cote		
<i>The University of Colorado</i>	(1991)	Undergraduate Research Assistant
Mentor: Jim Miess		
<i>Nichols Research Corporation</i>	(1989)	Office Assistant (SECRET clearance held)
Supervisor: Howard Smith		

Education

<i>Cornell University</i>	Ph. D. in Applied Mathematics (2003)
Thesis: <i>Control of a Spring-Mass Hopper</i> Advisor: <i>John Guckenheimer</i>	
<i>University of Colorado at Boulder</i>	B. S. in Applied Mathematics (1993)
<i>Marine Biological Laboratory, Woods Hole, Massachusetts.</i>	2007 Neural Systems and Behavior (8 week course)
<i>University of Colorado, Boulder Colorado.</i>	1990 Research Experiences for Undergraduates (8 week program)

Teaching & Course Development

For the following courses, I was the instructor on record for at least one semester:

American University

Elementary Mathematical Models
Applied Calculus
Basic Statistics
Basic Statistics – Sociology and Political Science
Basic Statistics with Calculus
Finite Mathematics
Introduction to Statistical Computing and Modeling

The Johns Hopkins University

Electronics and Instrumentation
Modeling and Identifying Neural Systems (I developed this course).

For the following courses, I played a supporting role:

The Johns Hopkins University

Locomotion
Neural Circuits and Behavior

The University of Maryland

Motor Control

Cornell University

Calculus II for Engineers

Professional Memberships

American Statistical Association

(2016 – present)

Society for Neuroscience

(2005 – 2016)

American Mathematical Association

(2003 – 2004)

Society for Industrial and Applied Mathematics

(1993 – 2002)

Honors

National Science Foundation Graduate Fellow

(1993 – 1996)

Peer-Reviewed Publications

Carver S, Fortune E, Cowan N. State estimation and cooperative control with uncertain time. In *Proceedings of the American Control Conference*, 2013.

Carver S, Cowan N, Guckenheimer J. Lateral stability of the spring-mass model suggests a two-step control strategy for running. *Chaos*, 19(2), 2009.

Carver S, Kiemel T, Cowan N, Jeka JJ. Optimal motor control may mask sensory dynamics. *Biological Cybernetics*, 101(1):35-42, 2009.

Carver S, Roth E, Cowan N, Fortune E. Synaptic plasticity can produce and enhance direction selectivity. *PloS Computational Biology*, 4(2), 2008.

Carver S, Kiemel T, Jeka JJ. Modeling the dynamics of sensory reweighting. *Biological Cybernetics*, 2006.

Jeka JJ, Allison L, Saffer M, Zhang Y, Carver S, Kiemel T. Sensory reweighting with translational visual stimuli in young and elderly adults: the role of state dependent noise. *Experimental Brain Research*, 2006.

Jeka JJ, Carver S, Allison L, Kiemel T. Sensory reweighting in healthy and fall prone adults: Time scales, transient and asymptotic dynamics. In *From Basic Motor Control to Functional Recovery IV*, Gantchev N, ed., Marin Drinov Academic Publishing House, 2005.

Carver S, Kiemel T, van der Kooij H, Jeka JJ. Comparing internal models of the dynamics of the visual environment. *Biological Cybernetics*, 92, 147-163, 2005.

Easton B, Meiss J, Carver S. Exit times and transport for symplectic twist maps. *Chaos*, vol.3, no. 2, 1993.

Selected Conference Presentations

- Carver S. On estimating ion channel densities in model neuron with simulated patch clamp data. The 45th Annual Meeting of the Society for Neuroscience. Chicago, IL., October 2015. Poster Presentation.
- Carver S, Hines M. Software for Model Based Design of Experiments. The 44th Annual Meeting of the Society for Neuroscience. Washington DC., November 2014. Poster Presentation.
- Carver S, Hines M. Fitting single cell models to voltage and current clamp data: a Bayesian filter computes likelihood with in the NEURON simulation environment. The 19th Annual Computational Neuroscience Meeting, July 2010. Poster Presentation.
- Carver S. Bringing the research frontier to the classroom: teaching neural modeling through system identification. The 38th Annual Meeting of the Society of Neuroscience, Washington DC, November 2008. Poster Presentation.
- Carver S. Lateral stability suggests the control strategy for running looks ahead two steps. The 37th Annual Meeting of the Society of Neuroscience, San Diego, CA, November 2007. Poster Presentation.
- Carver S, Kiemel T, Jeka JJ. Adaptive Multisensory Fusion: Resolving conflicts in an uncertain changing environment. The 3rd Annual Computational and Systems Neuroscience Conference Workshops, The Canyons, Park City, Utah, March 2006. Oral Presentation.
- Carver S, Kiemel T, Oie K., Jeka JJ. Modeling Temporal Asymmetry in the Dynamics of Sensory Reweighting. The 35th Annual Meeting of the Society of Neuroscience, Washington, DC. November 2005. Poster Presentation.
- Carver S, Kiemel T, Jeka JJ. Modeling the Dynamics of Sensory Reweighting, Progress in Motor Control V, The Pennsylvania State University, State College, PA, June 2005. Poster Presentation.
- Carver S, Kiemel T, van der Kooij H, Jeka JJ. Comparing internal models of the dynamics of the visual environment. The 13th Annual Computational Neuroscience Computational Conference, Baltimore MD, July 2004. Poster Presentation.
- Carver S, Kiemel T, van der Kooij H, Jeka JJ. Testing adaptive models of postural sway. The 14th European Society for Biomechanics Conference, s'Hertogenbosch, The Netherlands, July 2004. Oral Presentation.

Student Collaborators

1. Alexander Spinos, undergraduate; class of 2015. *Fitting models of human rhythm and internal timing.*
2. Kyle Wall, undergraduate; class of 2015. *Internal timing with visual and auditory perturbations.*
3. Robert Nickl, Ph.D. candidate. *System identification of cooperative synchrony.*
4. Wasim Ashshowaf, undergraduate, class of 2017. *Inverse Gaussian model of continuation tapping.*
5. Daniel Scanlan, undergraduate, class of 2018. *Inverse Gaussian model of continuation tapping.*
6. Rebeca Berger, graduating senior, class of 2017. *Model Selection and Baseball.*
7. Jennifer Schaffer, graduating senior, class of 2017. *Analyzing a large volume of Trump-related tweets.*

References

1. Noah Cowan, Ph. D., Associate Professor, Department of Mechanical Engineering, The Johns Hopkins University, 126 Hackerman Hall, 3400 N. Charles St., Baltimore MD, 21218, ncowan@jhu.edu, phone: 410-516-5301.
2. Louis Whitcomb, Ph.D., Professor, Department of Mechanical Engineering, The Johns Hopkins University, 116 Hackerman Hall, 3400 N. Charles St., Baltimore MD, 21218, llw@jhu.edu, phone: 410-516-6724.
3. John Guckenheimer, Ph.D., Professor, Department of Mathematics, Cornell University, 565 Malott Hall, Ithaca, NY 14853, jmg16@cornell.edu, phone: 607-255-8292.
4. Misha Ahrens, Ph.D., Group Leader, Janelia Research Campus, (and presently my collaborator) ahrensm@janelia.hhmi.org.