

Jeffrey Robert Spies

PERSONAL INFORMATION

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FORMAL EDUCATION

Ph.D. Quantitative Psychology, Completion Expected: 2012
University of Virginia, Charlottesville, VA (advisor Brian Nosek)

M.A. Quantitative Psychology, December 2007
University of Notre Dame, Notre Dame, IN (advisor Steven M. Boker)
Thesis Topic: *Local Sequence Alignment as a Method to Detect Temporal Patterns in Behavioral Data*

B.S. Computer Science, Second Major: Psychology, Cum Laude, May 2004
University of Notre Dame, Notre Dame, IN.

PROFESSIONAL POSITIONS

2008–Present: *Graduate Student*, Ph.D. Program in Quantitative Psychology, Department of Psychology, University of Virginia.

2008: *Laboratory Co-Manager*, Human Dynamics Laboratory, University of Virginia.

2006–2007: *Laboratory Manager*, Laboratory for the Quantitative Investigation of Human Dynamics, University of Notre Dame.

2004–2007: *Graduate Student*, Joint Ph.D. Program in Quantitative Psychology and Computer Science, Department of Psychology, University of Notre Dame.

SERVICE POSITIONS

2008–Present: *Quantitative Curriculum Committee*, Department of Psychology, University of Virginia.

2005: *Graduate Curriculum Committee*, Department of Psychology, University of Notre Dame.

PROFESSIONAL HONORS & AWARDS

Teaching and Technology Support Partners Program (2010–2011) Awarded tuition and stipend to develop and conduct a graduate-level course on statistical computing and programming (using R) for students and faculty of the Department of Psychology at the University of Virginia. As a result of this proposal, two subsequent years of partial funding were also provided to the department in order to support computational training.

Doris Buffet Fellowship (2010) Awarded \$1750 to support applied work related to the topic of children and families in need.

National Institute of Aging Quantitative Training Grant (2008–2009) Department of Psychology, University of Virginia.

LIFE Program Fellow (2008–Present) selected for membership in the international LIFE program on lifespan development.

SGI Award for Computational Science and Visualization (2005) sponsored by SGI for TreeView: A Multi-Dimensional Visualization Tool.

Departmental Graduate Fellowship (2004–2010, accepted through 2007) Department of Psychology, University of Notre Dame.

Senior Honors Thesis (2003–2004) Department of Psychology, University of Notre Dame
Title: Context processing deficits as the locus of age-related differences in Stroop interference: A computational study.
Advisor: Dr. Robert West, Department of Psychology.

Dean’s Honor List (2001–2004) University of Notre Dame.

ACM East Central North America Programming Contest Honorable Mention (2001) sponsored by IBM.

JOURNAL ARTICLES

Boker, S., Neale, M., Maes, H., Wilde, M., Spiegel, M., Brick, T., Spies, J., Estabrook, R., Kenny, S., Bates, T., Mehta, P., & Fox, J. (in press). OpenMx: An Open Source Extended Structural Equation Modeling Framework. *Psychometrika*.

Boker, S. M., Cohn, J. F., Theobald, B., Matthews, I., Mangini, M., Spies, J. R., Ambadar, Z., & Brick, T. R. (in press) Something in the Way We Move: Motion Dynamics, not Perceived Sex, Influence Head Nods in Conversation. *Journal of Experimental Psychology: Human Perception & Performance*.

Boker, S., Cohn, J., Theobald, B., Matthews, I., Brick, T., & Spies, J. (2009) Effects of Damping Facial Expression in Dyadic Conversation Using Real-Time Facial Expression Tracking and Synthesized Avatars. *Philosophical Transactions of the Royal Society*.

Theobald, B., Matthews, I., Mangini, M., Spies, J., Brick, T., Cohn, J. F., Ambadar, Z., & Boker, S. (2009) Mapping and Manipulating Visual Prosody. *Journal of Language and Speech*.

Brick, T. R., Spies, J. R., Theobald, B.–J., Matthews, I., & Boker, S. M. (2009). High–Presence, Low–Bandwidth, Apparent 3D Video–conferencing with a Single Camera. *Proceedings of the 9th International Workshop on Image Analysis for Multimedia Interactive Services*.

Spies, J. R. (2005). HDTreeV: A Multidimensional Visualization Tool. *2005 Proceedings of the North American Association for Computational, Social, and Organizational Science*.

SOFTWARE PROJECTS, PUBLICATIONS, & PATENTS

Project Director

The OpenAutism Project: Founder and director of a project creating free, open source software specifically aimed at reducing burdens associated with autism.

Lead Developer

OpenMx Graphical User Interface: An open source, graphical user interface for OpenMx (see below) allowing structural equation models to be specified graphically allowing for simultaneous code generation. Currently under development.

HDTreeV: (formerly TreeView) An open source, visualization tool for exploring high-dimensional data. Available at <http://people.virginia.edu/~js6ew/hdtreev>.

HBaseR: An open source, R package for accessing very large amounts of data using the “big data” database, Apache HBase. Available at <http://people.virginia.edu/~js6ew/hbaser>.

OpenAutism’s Börd: Open source software for creating printed and interactive materials, such as communication boards and schedules, for use with children who have learning and/or developmental disabilities. Currently under development.

Nullshop: Open source software for scrambling images to test a content-free null hypothesis. Available at <http://people.virginia.edu/~js6ew/nullshop>.

GuitarMorph: An open source, musical analogy of Richard Dawkins’ BioMorphs uses a genetic algorithm to evolve playable guitar music based on the tastes of a human listener. Currently under re-development.

Core Development Team

OpenMx: Multipurpose Software for Statistical Modeling: Open source software for statistical modeling, including Structural Equation Modeling. Available at <http://openmx.psyc.virginia.edu>.

Patents

Boker, S. M., Brick, T. R., & Spies, J. R. “System, Computer Program Product and Method for Low Bandwidth Videoconferencing with Motion Parallax.” U.S. Provisional Patent Application No. 61/235,549 (Supplemental), filed August 20, 2009.

BOOK CHAPTERS

Lubke, G., & Spies, J. (2008). Choosing a “correct” mixture model: Power, limitations, and some help from graphics. In G. R. Hancock & K. M. Samuelsen (Eds.), *Mixture Models in Latent Variable Research*. Charlotte, NC: Information Age Publishing, 343–362.

CONFERENCE PAPERS, COLLOQUIA, SYMPOSIA, & POSTERS

- Spies, J. R., & Keen, R. E. (2010) Picking Up Tools: Cognitive and Motor Factors in Acquiring a New Skill. *International Conference on Infant Studies (ICIS) 2010 Biennial Meeting*; Baltimore, MD; March 11, 2010.
- Boker, S., Neale, M., Maes, H., Mehta, P., Wilde, M., Brick, T., Spies, J., Spiegel, M. Estabrook, R., Hunter, M., Kenny, S., Fox, J., & Bates, T. (2009) OpenMx: An Open Source and Extensible SEM Framework. *Annual Meeting of the Society of Multivariate Experimental Psychology*; Salishan, Oregon; October 10, 2009.
- Boker, S., Neale, M., Maes, H., Wilde, M., Spiegel, M., Brick, T., Spies, J., Estabrook, R., Kenny, S., Bates, T., Mehta, P., & Fox, J. (2009) OpenMx: Multipurpose Software for Statistical Modeling. *Facilitating Interdisciplinary Research: Methodological and Technological Innovation in the Behavioral and Social Sciences Meeting*; Bethesda, Maryland; October 8, 2009.
- Lerner, M. D., Spies, J. R., Jordan, B. L., & Mikami, A. Y. (2009) Critical Self-Referent Attributions Potentiate Social Skills Intervention Response in Adolescents with Asperger Syndrome & High-Functioning Autism. *International Meeting for Autism Research*; May 8, 2009.
- Boker, S. M., Brick, T. R. & Spies, J. R. (2008) Coordination of Facial Expressions and Head Movement in Dyadic Conversation. Presented to the *New England Sequencing and Timing 2008*; March 8, 2008.
- Matthews, I., Boker, S. M., Theobald, B.-J., Cohn, J. F., Mangini, M., Spies, J. R., Brick, T. R., & Abadar Z. (2007) Facial Expression and Motion in Dyadic Conversation. Presented at *Meeting of Minds: The Thinking Head Thinking Systems Project*; Parramatta, Australia; November 23, 2007.
- Boker, S. M., Cohn, J. F., Lucey, S., Theobald, B.-J., Matthews, I., Abadar, Z., Mangini, M., Spies, J. R., & Brick, T. R. (2007) Measuring and Manipulating Coordination Dynamics during Conversation. Presented to the *Annual Meeting of the Society of Multivariate Experimental Psychology*; Chapel Hill, NC; October 18, 2007.
- Boker, S. M., Cohn, J. F., Lucey, S., Theobald, B.-J., Matthews, I., Abadar, Z., Mangini, M., Spies, J. R., & Brick, T. R. (2007) Manipulation of Appearance and Dynamics during Dyadic Interaction. Invited talk presented to the *National Science Foundation Human and Social Dynamics Program Annual PIs Meeting*; Arlington, VA; October 2, 2007.
- Boker, S. M., Ashenfelter, K. T., & Spies, J. R. (2006). Age-Related Latent Differential Equations Models for Multivariate Measurement of the Dynamics of Intraindividual Variability. Symposium talk presented to the *Annual Convention of the Gerontological Society of America*; November, 2006.
- Boker, S. M., Cohn, J., Matthews, I., Ashenfelter, K., Spies, J., Brick, T., Deboeck, P., Covey, E. & Tiberio, S. (2006) Coordinated Motion and Facial Expression in Dyadic Conversation. Poster presented to the 2006 NSFHSD P.I. meeting; Washington, DC; September 14–15, 2006.

- Chow, S.-M., Bauer, C., Spies, J. R., Li, S.-C., Lindenberger, U. & Baltes, P. B. Predicting optimal pathways to cognitive aging: Agent-based modeling of selection, optimization, and compensation dynamics. Talk presented at the *Annual Convention of the American Psychological Association*, New Orleans, LA; August, 2006.
- Lubke, G., & Spies, J. (2006). Factor Mixture Analysis of Beck Depression Inventory Data: Initial Analyses, Graphical Representation, and Power Calculations. *Notre Dame Series on Quantitative Methodology: Methods for Child & Adolescent Development and Family Processes*; May, 2006.
- Lubke, G., & Spies, J. (2006). Choosing a “correct” mixture model: Power, limitations, and some help from graphics. *Annual Conference for Mixture Models in Latent Variable Research*; May 2006.
- Chow, S., Spies, J. R., Bauer, C., Li, S., Lindenberger, U., & Baltes, P. B. (2006). An Agent-Based Mathematical Modeling Approach to the Theory of Selection, Optimization and Compensation (SOC). *Cognitive Aging Conference*; April, 2006.
- Boker, S. M., & Spies, J. (2005). Age-related differences in time-varying coordination during standing. Symposium talk presented to the *Annual Meeting of the Gerontological Society of America*; November 22, 2005.
- Spies, J. R. (2003). GuitarMorph: the musical analogy of the BioMorph. Poster presented at *SwarmFest 2003: Seventh Annual Swarm Users/Researchers Conference*.
- Eberhard, K. M., Scheutz, M., Targowski, K., & Spies, J. (2002). The effects of grammatical gender associations in one’s native language on the processing of word representations in a second language. Poster presented at the 15th Annual CUNY Conference on Human Sentence Processing.

INVITED & DEPARTMENTAL TALKS

- Spies, J. R. (2010). Big Data and the Transformative Nature of More: Implications for a Small Data Discipline. Presented at the University of Virginia Design and Data Analysis Seminar Series. Charlottesville, VA; October 2010.
- Spies, J. R. (2010). Autism and Motor Functioning. Presented at the University of Virginia Body Sensor Networks Seminar. Charlottesville, VA; March 2010.
- Spies, J. R. (2010). Detecting patterns: a methodological paradigm for understanding development. Presented at the University of Virginia Developmental Psychology Seminar Series. Charlottesville, VA; February 2010.
- Spies, J. R. (2010). Caring for your data: techniques and tools for storing, cleaning, and protecting data. Presented at the University of Virginia Design and Data Analysis Seminar Series. Charlottesville, VA; January 2010.

- Spies, J. R. (2009). Detecting Patterns in Temporal Data. Presented at the Fall Research Academy of the LIFE Fellowship Program. Ann Arbor, MI; October 2009.
- Spies, J. R. (2009). Local Sequence Alignment as a Method to Detect Patterns in Temporal Behavioral Data. Poster presented at the Spring Research Academy of the LIFE Fellowship Program. Zurich, Switzerland; May 2009.
- Spies, J. R. (2009). Emergence, Agent-Based Modeling, and Other Concepts from Complex Systems: A Role in Understanding the Individual? Presented at the University of Virginia Design and Data Analysis Seminar Series. Charlottesville, VA; April 2009.
- Spies, J. R. (2008). A Discussion of the OpenMx User Interface. Presented at the University of Virginia Design and Data Analysis Seminar Series. Charlottesville, VA; November 2008
- Spies, J. R. (2008). Local Sequence Alignment as a Method to Detect Temporal Patterns. Presented at the University of Virginia Design and Data Analysis Seminar Series. Charlottesville, VA; March 2008.
- Spies, J. R. (2007). Local Sequence Alignment as a Method to Detect Patterns in Temporal Behavioral Data. Presented at the University of Notre Dame Quantitative Studies Group. Notre Dame, IN; November 2007.
- Spies, J. R. (2006). Genetic Algorithms: From Darwin to Darwin the Guitarist. Presented at the University of Notre Dame Quantitative Studies Group. Notre Dame, IN; March 2006.
- Spies, J. R. (2005). Rethinking Agent-Based Modeling: Applications in Psychology. Presented at the University of Notre Dame Quantitative Studies Group. Notre Dame, IN; November 2005.
- Spies, J. R., & West, R. (2005). Context processing deficits as the locus of age-related differences in Stroop interference: A computational study. Presented at the Max Planck Institute for Human Development, Berlin, Germany; May 2005.
- Spies, J. R. (2005). TreeView: a Multi-Dimensional Visualization Tool. Presented at the University of Notre Dame Quantitative Studies Group. Notre Dame, IN; April 2005.

CLASSROOM TEACHING

Instructor of Record

Fundamentals of Statistical Computing for Behavioral and Social Scientists (PSYC 7765) University of Virginia, Fall 2010

Engineering Projects In Community Service (CSE 20600, 30600, 40600) University of Notre Dame, Fall 2005, Spring 2006, Fall 2007

Teaching Assistant

Graduate Statistics (PSY 60100) University of Notre Dame, Fall 2005

WORKSHOP TEACHING

Lead Instructor

Agent-Based Modeling of Lifespan Development Workshop: Examples, Implementation, Strategies and Implications for Psychological Research, Workshop, Max Planck Institute for Human Development, Berlin, Germany; June 1–2, 2005 (co-taught with S.-M. Chow).

Faculty

The 2010 International Workshop On Methodology Of Twin And Family Studies: Workshop, Boulder, CO; March1–5, 2010.

The 2008 International Workshop On Methodology Of Twin And Family Studies: Workshop, Boulder, CO; March3–7, 2008.

Teaching Assistant

APA Advanced Training Institute - Structural Equation Modeling in Longitudinal Research: Workshop, Charlottesville, VA; May 25–29, 2010.

APA Advanced Training Institute - Structural Equation Modeling in Longitudinal Research: Workshop, Charlottesville, VA; June 9–13, 2008.

PAST & CURRENT PROFESSIONAL MEMBERSHIP

American Statistical Association (ASA), International Society on Infant Studies (ISIS), North American Association for Computational, Social, and Organizational Science (NAACSOS).