
Curriculum Vitae

Personal Information

Name Jacob Lowell Bishop
 Email jacob.bishop@usu.edu, bishop.jacob@gmail.com
 Phone (801) 796-2529, (208) 360-0529
 Citizenship United States
 Languages English, Spanish

Education

Dec. 2013 **PhD-Engineering Education**
 Utah State University - Logan, UT
 Dissertation: *A Controlled Study of the Flipped Classroom with Numerical Methods for Engineers*
 Advisors: Dr. Gilberto Urroz and Dr. Matthew Verleger
 GPA: 3.88

Dec. 2010 **MS-Mechanical Engineering**
 Brigham Young University - Provo, UT
 Thesis: *Search Pattern Generation and Path Management for Search over Rough Terrain with a Small UAV*
 Advisor: Dr. Timothy McLain
 GPA: 3.39

Apr. 2007 **BS-Mechanical Engineering**
 Brigham Young University–Idaho - Rexburg, ID
 GPA: 3.61

Research and Teaching Appointments

Postdoctoral Research Associate
 Utah State University, Department of Psychology Jan. 2014 Present

Graduate Research Assistant
 Utah State University, Department of Psychology Aug. 2012 Dec. 2013

Graduate Instructor
 Utah State University, Department of Engineering Education Jan. 2013 May 2013

Research/Teaching Assistant
 Utah State University, Department of Engineering Education Jan. 2011 Aug. 2012

Graduate Research Assistant
 Brigham Young University, Department of Mechanical Eng. Sep. 2007 Dec. 2010

Summer Researcher
 Air Force Research Laboratory, Wright-Patterson AFB,
 Air Vehicles Directorate May 2009 July 2009

Mech. Engineering Intern; Engineering Geophysics Research

Idaho National Laboratory

May 2006 Aug. 2007

Mathematics Tutor

Brigham Young University—Idaho Department of Mathematics

Jan. 2005 Apr. 2006

Research Interests

- Open Online Education
- Flipped Classroom
- Intelligent Tutoring Systems
- Educational Data Mining
- Psychometrics
- Structural Equation Modeling
- Latent Variable Analysis
- Control of Unmanned Aerial Vehicles
- Robot Path Planning

Leadership and Volunteer Service

Chair

School Community Council, Bridger Elementary School

Sept. 2013 Present

President

ASEE Student Section at Utah State University

Apr. 2013 Present

Information Chair

ASEE Student Division (national-level)

June 2013 Present

Co-Chair

School Community Council, Bridger Elementary School

Sept. 2012 Sept. 2013

Webmaster/VCS Administrator

MAGICC Lab at Brigham Young University

Apr. 2008 Dec. 2010

Vice-Chair

ASME Student Section at BYU-Idaho

Sept. 2006 Sept. 2007

Secretary

ASME Student Section at BYU-Idaho

Sept. 2005 Sept. 2006

Publications

Journal Articles (Peer-Reviewed)

Geiser, C., Bishop, J., Lockhart, G., Shiffman, S., & Grenard, J. (2013). Analyzing latent state-trait and multiple-indicator latent growth curve models as multilevel structural equation models. *Frontiers in Quantitative Psychology and Measurement, 4*:975. doi: 10.3389/fpsyg.2013.00975

Bishop, J., & Geiser, C. (in press). Modeling latent growth with multiple indicators: A comparison of three approaches. *Psychological Methods*.

Geiser, C., Litson, K., Bishop, J., Keller, B. T., Burns, G. L., Servera, M., & Shiffman, S. (under review). Analyzing Person, Situation, and Person \times Situation Interaction Effects: Latent State-Trait Models for the Combination of Random and Fixed Situations. (Submitted to: *Psychological Methods*.)

Conference Papers (Peer-Reviewed)

- Bishop, J. (2013, October). Testing the flipped classroom with model-eliciting activities and video lectures in a mid-level undergraduate engineering course. In *Frontiers in education conference (FIE), 2013*. Oklahoma City, Oklahoma.
- Bishop, J., & Verleger, M. (2013, June). The flipped classroom: A survey of the research. In *American society for engineering education annual conference*. Atlanta, Georgia. Retrieved from <http://www.asee.org/public/conferences/20/papers/6219/view>
- Bishop, J., & Verleger, M. (2012, October). Feedback effects: Comparing the change resulting from peer and TA feedback to student solutions of model-eliciting activities. In *Frontiers in education conference (FIE), 2012* (Vol. 0, pp. 1–6). Los Alamitos, CA, USA: IEEE Computer Society. doi:10.1109/FIE.2012.6462434
- Bishop, J., & Verleger, M. (2011). Work in progress—using the Levenshtein distance to examine changes to teams' model-eliciting activity solutions throughout a semester. In *Frontiers in education conference (FIE), 2011* (Vol. 0, p. S4D-1-S4D-3). Los Alamitos, CA, USA: IEEE Computer Society. doi:10.1109/FIE.2011.6142809
- Millet, P. T., Casbeer, D. W., Mercker, T., & Bishop, J. (2010, August). Multi-agent decentralized search of a probability map with communication constraints. In *AIAA guidance, navigation and control conference*. Toronto, Ontario Canada: American Institute of Aeronautics and Astronautics. doi:10.2514/6.2010-8424

Conference Posters/Abstracts (Peer-Reviewed)

- Bishop, J. (2013, June). Proposing the exploration of stochastic models for research in engineering education. In *American society for engineering education annual conference*. Atlanta, Georgia.
- Bishop, J. & Geiser, C. (2013, May). Multiple-indicator latent growth curve models: An analysis of the second-order growth model and two less restrictive alternatives. In *Modern modeling methods (M³) conference*. Storrs, Connecticut.

Teaching Experience

Spring 2013

Numerical Methods for Engineers

Numerical analyses applied to engineering problems, including simultaneous solutions of linear and nonlinear equations, optimization, curve fitting, numerical differentiation and integration, and numerical solutions of differential equations.

Ad Hoc Journal Reviewer

Frontiers in Psychology (Quantitative Psychology and Measurement)

International Journal of Control, Automation and Systems

Computers in Education

Journal of Field Robotics