

Revised May, 2019

## CURRICULUM VITAE

Andriy V. Koval, Ph.D.

Assistant Professor  
Department of Health Management and Informatics  
College of Community Innovation and Education  
University of Central Florida  
Phone: (407)-823-2272  
Email: [andriy.v.koval@ucf.edu](mailto:andriy.v.koval@ucf.edu)  
Web: <http://andriy.rbind.io>

## APPOINTMENTS

Dec 2018 -	Assistant Professor Department of Health Management and Informatics University of Central Florida, Orlando
2017 - 2018	Health System Impact Fellow for Canadian Institutes of Health Research BC Observatory for Population and Public Health BC Centre for Disease Control University of British Columbia
2014 – 2017	Postdoctoral Research Scientist Integrative Analysis of Longitudinal Studies of Aging research network. Institute of Aging & Lifelong Health, University of Victoria Advisors: Andrea Piccinin, Ph.D. and Scott Hofer, Ph.D.
2015 – 2017	Postdoctoral Research Fellow Applied Clinical Research Unit, Vancouver Island Health Authority Advisor: Kenneth Moselle, Ph.D., R.Psych.

## EDUCATION

2012 - 2014	Doctor of Philosophy, Quantitative Methods Peabody College of Education and Human Development, Vanderbilt University Dissertation: “ <i>A Graphical System for Longitudinal Modeling using Dynamic Documents: Application to NLSY97 Religiosity Data</i> ” Advisor: Joseph Lee Rodgers, Ph.D. Members of the defense committee: James H. Steiger, Kristopher J. Preacher, Gary T. Henry
2008 – 2012	Residency at University of Oklahoma under J. L. Rodgers. Transferred to Vanderbilt University following advisor’s hire

- 2006 – 2008      Masters of Arts, Quantitative Psychology  
 Thesis: “*Comparative analysis of modern differential item functioning (DIF) methods through Monte Carlo simulation*”  
 Advisor: Jwa Kim, Ph.D.
- 2001 – 2005      Bachelor of Science, Journalism  
 Summa Cum Laude, with Distinction from Honors College  
 College of Mass Communication, Middle Tennessee State University  
 Thesis: “*Influence of Brand Advertising on the Nature of Interpersonal Communication in Ukrainian Society*”  
 Minors: Psychology, Marketing.  
 Advisor: Ed Kimbrel, Ph.D.

## COLLABORATIVE WORKSHOPS and HACKATHONS

*Linked Data Innovation Challenge*. Hackathon at the 2018 International Population Data Linkage Conference. 2018 Sep 12-14. Best Data Visualization award for dynamic visualization of logistic regression with the coloring book technique. (See <https://github.com/andkov/ipdln-2018-hackathon> )

*Probabilistic Programming for Advanced Machine Learning summer school* hosted by DARPA in Arlington, Virginia. July 24 - Aug 4. Summer school project demonstrated the application of BayesDB in simulating realistic EHR trained by transactional records from Vancouver Island Health Authority . (See <https://github.com/IHACRU/ihacru-ehr-simulation>)

*Assessing the impact of different harmonization procedures on the analysis results from several real datasets*. Maelstrom Harmonization Workshop. April, 2016. Groningen, Netherlands. Role: developer of a workflow for harmonizing 5 longitudinal studies. (See <https://github.com/IALSA/ialsa-2016-groningen>)

*Multi-study and multivariate evaluation of healthy life expectancy (HLE): An IALSA workshop on multistate modeling using R*. April, 2016. Amsterdam, Netherlands. Role: modeler and repository developer. (See <https://github.com/IALSA/ialsa-2016-amsterdam>).

*Coordinated Analysis with replication using data from nine longitudinal studies*. February, 2015. Portland, OR. Integrative Analysis of Longitudinal Studies of Aging network. Role: developing software tools for implementing parallel analysis and processing model results in Mplus, R, and Github (See <https://github.com/IALSA/ialsa-2015-portland>).

## CERTIFICATION

Certificate in College Teaching, Center for Teaching, Vanderbilt University. Fall, 2013.

## HONORS & AWARDS

Best Data Visualization Award, International Population Data Linkage Conference, Banff AB, 2018

Travel Award, Society of Multivariate Experimental Psychology, 2013

Outstanding Graduate Student in Quantitative Psychology, MTSU, 2008

Outstanding Graduate Student in Psychology, MTSU, 2008

Summa Cum Laude, with Distinction from Honors College, MTSU, 2005

## PROFESSIONAL DEVELOPMENT

Light-touch Project Management, Health System Impact Fellowship training, Toronto, November 2017

Probabilistic Programming for Advancing Machine Learning summer school, Arlington VA, July 2017

Scholarship of Teaching and Learning Program, Center for Teaching, Vanderbilt University. Fall, 2013

*Advanced R programming.* Workshop by RStudio and Hadley Wickham, D.C., January, 2012

*R package development.* Workshop by RStudio and Hadley Wickham, D.C., January, 2012

*Presenting data and information: One-day course.* Workshop by Edward Tufte, San Francisco, CA, May, 2012

*National Longitudinal Survey Summer workshops.* Columbus, OH. May, 2009

*SAS Global Forum,* Orlando, FL. March, 2008

## TEACHING

### **Dept. of Health Management and Informatics, University of Central Florida**

*Fundamental of Health Information Technology.* Undergraduate. Spring 2019. Instructor.

### **Dept. of Psychology, University of Victoria**

Curriculum development grant from University of Victoria to develop flipped classroom materials for a graduate statistics course [\*Introduction to Statistical Modeling for Social Sciences\*](#). Fall, 2015. Amount: \$10,000. PI: Andrea M. Piccinin.

*Introduction to Statistical Modeling for Social Sciences.* Graduate. Fall, 2015. Course developer and Instructor.

*Multivariate Statistics*. Graduate. Spring, 2015. Co-instructor with Dr. Andrea Piccinin.

*Longitudinal Modeling*. Graduate. Spring, 2015. Co-instructor with Dr. Scott Hofer.

### **Dept. of Psychology and Human Development, Vanderbilt University**

*Undergraduate Statistics*. Fall, 2012. Teaching assistant to Dr. Joseph Rodgers

### **Dept. of Psychology, University of Oklahoma**

*Undergraduate Statistics*. Spring 2009, Summer 2009, Winter 2011. Full instructor

*Graduate Statistics I*. Fall 2009, Fall 2010. Teaching assistant

*Undergraduate Statistics*. Spring 2010, Fall 2011, Spring 2011. Teaching assistant

### **Dept. of Psychology, Middle Tennessee State University**

*Graduate Statistics: ANOVA*. Fall 2007. Teaching assistant

*Graduate Statistics: Regression*. Spring 2008. Teaching assistant

*Undergraduate Statistics*. Spring 2006, Spring 2007. Teaching assistant

## PUBLICATIONS

### **Peer-reviewed**

Zammit, A.R.; Piccinin, A.M.; Duggan, E.; **Koval, A.**; Clouston, S.; Robitaille, A., Brown, C.L.; Handshuh, P.; Wu, C.; Jarry, V.; Finkel, D.; Graham, R.B.; Muniz-Terrera, G.; Praetorius Björk, M.; Bennett, D.; Deeg, D.J.; Johansson, B.; Katz, M.J.; Kaye, J.; Lipton, R.B.; Martin, M.; Pederson, N.; Spiro, A.; Zimprich, D.; Hofer, S.M. (in press) A coordinated multi-study analysis of the longitudinal association between handgrip strength and cognitive function in older adults. *The Journal of Gerontology: Psychological Sciences*, *forthcoming*.

Duggan, E. C., Piccinin, A. M., Clouston, S., **Koval, A. V.**, Robitaille, A., Zammit, A. R., Wu, C., Brown, C. L., Lee, L. O., Finkel, D., Beasley, W. H., Kaye, J., Muniz Terrera, G., Katz, M., Lipton, R. B., Deeg, D., Bennett, D. A., Praetorius Björk, M., Johansson, B., Spiro III, A., Weuve, J., & Hofer, S. M. (2019). A multi-study coordinated meta-analysis of pulmonary function and cognition in aging. *The Journals of Gerontology: Medical Sciences*, *forthcoming*.

Robitaille, A., van den Hout, A., Machado, R. J., Bennett, D. A., Čukić, I., Deary, I. J., ... & **Koval, A. V.** (2018). Transitions across cognitive states and death among older adults in relation to education: A multistate survival model using data from six longitudinal studies. *Alzheimer's & Dementia*, 14(4), 462-472.

Muniz Terrera, G., Robitaille, A., Cukic, I., Hoogendijk, E. O., Skoog, J., **Koval, A. V...** Van den Hout, A. (2017). Active cognitive lifestyle as a protective factor for cognitive decline and dementia? *Innovation in Aging*, 1(1), 1276.

Kelly, Amanda; Calamia, Matthew; **Koval, Andriy V.**; Terrera, Graciela Muniz; Piccinin, Andrea M.; Clouston, Sean; Hassing, Linda B.; Bennett, David A.; Johansson, Boo; Hofer, Scott M. *Independent and interactive impacts of hypertension and diabetes mellitus on verbal memory: A coordinated analysis of longitudinal data from England, Sweden, and the United States*. Psychology and Aging, Vol 31(3), May 2016, 262-273.

### **Book Chapters**

Rodgers, J. L. & **Koval, A.V.** (2012). EMOSA models as developmental methodology: Extending social contagion models of adolescent problem behaviors to religious attendance. In Laursen, B., Little, T. & Card, N. (Eds.), *Handbook of Developmental Research Methodology*. (Pp. 701-724). New York: Guilford Press.

### **Published Abstracts**

**Koval, A. V.**, Beasley, W. H. (2014). *Abstract: Exploring Crawford-Ferguson Family of Rotations through an Interactive Visual System*. (3rd ed., vol. 49, pp. 288-9). Multivariate behavioral research. PMID: 26735197. DOI: 10.1080/00273171.2014.912918 (<https://github.com/andkov/ShinyEFA>)

### **Papers presented at Professional Meetings**

Moselle, K. A., Robertson, S., & **Koval, A.** (February 2019). "Real-World" De-Identification of High-Dimensional Transactional Health Datasets. *Studies in health technology and informatics*, 257, 319-324. Paper presented at the 20th Annual Privacy and Security Conference, Victoria, BC.

E. C. Duggan, A. M. Piccinin, A. Robitaille, A. R. Zammit, G. Muniz-Terrera, **A. Koval**, S. M. Hofer. *A Multi-Study Coordinated Meta-Analysis of Pulmonary Function and Cognition in Aging*. (November 2018) In G. Muniz-Terrera (chair) Aging-related dynamics between physical functioning and cognitive abilities across longitudinal studies. Paper symposium presented at the 71st Annual Scientific Meeting of the Gerontological Society of America, Boston, MA.

A. Zammit, A. M. Piccinin, A. Robitaille, S. Clouston, G. Muniz-Terrera, **A. Koval**, S. M. Hofer. *Correlated Changes in Grip Strength and Cognition: Multi-Study Results Based on Bivariate Linear Growth Modeling*. (November 2018) In G. Muniz-Terrera (chair). Aging-related dynamics between physical functioning and cognitive abilities across longitudinal studies. Paper symposium presented at the 71st Annual Scientific Meeting of the Gerontological Society of America, Boston, MA.

A. Robitaille, G. Muniz-Terrera, A. van den Hout, E. O. Hoogendijk, **A. V. Koval**, J. J. M. Rijnhart, J. Skoog, S. M. Hofer (November 2018) *Does Cognitive Lifestyle Matter? Examining Transitions Between Cognitive States Using MSM Across Four Studies*. In S. Hofer (chair) The role of replication research in advancing gerontological science: trajectories, transitions, and typologies. Paper symposium presented at the 71st Annual Scientific Meeting of the Gerontological Society of America, Boston, MA.

A. Robitaille, D. Cadar, **A. Koval**, C. Jagger, B. Johansson, S. Hofer, A. Piccinin, G. Muniz-Terrera. Is Cognitive Decline Before Death in the Oldest Old a Universal Phenomenon? (November 2018) In G. Hueluer (chair) New Developments in Cognitive AGing Research. Paper symposium presented at the 71st Annual Scientific Meeting of the Gerontological Society of America, Boston, MA.

**Koval, A.**, Moselle, K. ( September 2018) *Clinical Context Coding Scheme: Describing Utilisation of Services of Island Health between 2007-2017*. Poster presented at the biannual conference of International Population Data Linkage Network. Banff, AB.

**Koval, A.V.** ( May 2018). *Big data, big opportunities: exploring careers in population data science*. Invited panelist at the annual conference of Canadian Association for Health Services and Policy Research, Montreal, QC.

**Koval, A.**, Smolina, K., Moselle, K.(May 2018) *Severity and Burden of Mental Health: Techniques for stratifying chronic conditions based on linked clinical history*. Poster presented at the annual conference of Canadian Association for Health Services and Policy Research, Montreal, QC.

**Koval, A.**, Hofer, S., Moselle, K., Smolina, K.( March 2018) *Blueprints for Learning: How does Healthcare System advance the science of its data?* Poster presented at the 29th conference of the Centre for Health Services and Policy Research, Vancouver, BC.

Emiel O. Hoogendijk , Annie Robitaille, Ardo van den Hout, Robson Mariano Machado, Iva Čukić, Scott M. Hofer, **Andriy V. Koval**, Maaike van der Noordt, Judith J.M. Rijnhart, Johan Skoog, Lisa Vermunt, & Graciela Muniz Terrera. *Transitions across cognitive states and mortality among older adults in relation to education. A multistate survival model using data from six longitudinal studies*. Paper presented at the 29<sup>th</sup> REVES meeting, Santiago de Chile (Chile), May 17-19, 2017.

Robitaille, A., Van den Hout A., Machado, R.J.M., Čukić, I., Deary, I.J., Hofer, S.M., Hoogendijk, E.O., Johansson, B., **Koval, A.V.**, Van der Noordt, M., Piccinin, A.M., Rijnhart, J.J.M., Singh-Manoux, A., Skoog, J., Skoog, I., Vermunt, L., Muniz-Terrera, G. (2017, July). *Transitions Across Cognitive States and Mortality Among Older Adults: A Multi-State Survival Model*. Paper presented at the Alzheimer's Association International Conference (AAIC), London, UK.

**Koval, A.V.**, Beasley, W. H., Piccinin, A.M., Muniz-Terrera, G., Hofer, S. M., (June 2016) *Big Data, Big Analysis: A Collaborative Modeling Framework for Multi-study Replication*, Dynamic poster session presented at the Annual Convention of Canadian Psychological Association, Victoria, BC.

Vendittelli, R., **Koval, A.**, & Piccinin, A. M. (June 2016). *Longitudinal analyses of the moderating effects of physical activity on cognitive decline in aging*. Poster presentation at the Canadian Psychology Association 77th Annual Convention, Victoria, BC.

Vendittelli, R., **Koval, A.**, Piccinin, A. M. ( July 2016). *The mediating effects of stress on dynamic change in physical activity and cognitive decline in aging*. Poster presentation at the Alzheimer's Association International Conference, Toronto, ON.

Piccinin, A. M., Brown, C. L., Robitaille, A., **Koval, A.**, Zammit, A. R., Wu, C... Hofer, S. M. ( November 2015). Multivariate change in physical and cognitive functioning: Associations in eight IALSA-Affiliated

longitudinal studies. Poster presented at the 68th Annual Scientific Meeting of the Gerontological Society of America, Orlando, FL.

Piccinin, A.M., Brown, C.L., Robitaille, A., **Koval, A.**, Zammit, A.R., Wu, C., Clouston, S., Handschuh, P., Lee, L., Jarry, V., Finkel, D., & Hofer, S. M. (November 2015). *Multivariate Change in Physical and Cognitive Functioning: Associations in Eight IALSA-Affiliated Longitudinal Studies*. Poster presented at the 68th Annual Scientific Meeting of the Gerontological Society of America, Orlando, FL.

**Koval, A.V.**, Piccinin, A., Hofer, S., Muniz, G., Beasley, W. H., ( July 2015) *A Collaborative Modeling Framework for Multi-Study Coordinated Analyses*, Oral presentation at Wellcome Trust, Wellcome Trust Conference, Cambridge UK.

**Koval A.V.** (2010, March) *Historiographical Landscapes: visuals tools for teaching history*. Poster at the University of Oklahoma Graduate Fair, Norman, OK

**Koval A.V.**, Kim, J.K. (2008, August) *Comparative analysis of modern differential item functioning (DIF) methods through Monte Carlo simulation*. Presented at the Annual Meeting of the Mid-South Educational Research Association, Knoxville, TN.

Bernstein S., **Koval A.V.** (2005, May) *Measuring reading automaticity in school setting*. Poster presented at the regional Southeastern Psychological Association, Nashville, TN.

#### Under review

#### In preparation

**Koval, A.V.**, Beasley, W. H., Piccinin, A., Muniz-Terrera, G., Hofer, S., *Data science of big analysis: tools, methods, and recipes for coordinated analysis with replication*.

Piccinin, A., Robitaille, A., Brown, C. **Koval, A.**, Muniz-Terrera, G., Clouston, S., Zammitt, A., Handschuh, P., Wu, C., Jarry, V., Finkel, D., Beasley, W.H., Deeg, D.J.H., Johansson, B., Martin, M., Hofer, S. *Associations among age-related changes in physical capabilities: A coordinated analysis*

Muniz-Terrera, G., Robitaille, A., **Koval, A.V.**, Piccinin, A.M., Hofer S.M. *Sensitivity of results to design features: an illustration*.

Robitaille, A., Cadar, D., **Koval, A.V.**, Stephan, B.C., Jagger, C., Johanson, B., Hofer, S.M, Piccinin, A.M., Muniz-Terrera, G. *Is terminal decline inexorable?*

#### SOFTWARE

Beasley, W. H., **Koval, A.V.** (2015). *Software: IalsaSynthesis*. DOI: 10.5281/zenodo.30264

#### PRESENTATIONS

## Talks

**Koval, A.V.**, Moselle, K.A. (November, 2018) *Transactional data of Island Health: How patients vote with their feet*. Invited talk at the colloquium series by the Institute on Aging and Lifelong Health, Victoria, BC.

**Koval, A.V.**, Leamon, A., (November, 2018) *Constructing Workflows for Reproducible Analytics: Suppressing small counts for provincial chronic disease dashboard*. Invited talk at the colloquium series by the Institute on Aging and Lifelong Health, Victoria, BC.

**Koval, A.V.** (October 2018). *When notebooks are not enough*. Invited talk at the Matrix Institute for Applied Data Science, University of Victoria. (<https://onlineacademiccommunity.uvic.ca/matrix/>)

**Koval, A.V.** (November) Visualising Logistic Regression: Application of coloring book technique in a reproducible ggplot2 system. Invited webinar with PopDataBC (<https://www.popdata.bc.ca/events/etu/LogisticRegWebinar2015>)

**Koval, A.V.**, Beasley, W.H. (2017, January) *Scientific Collaboration with GitHub*. Hawaii Institute of Marine Biology. Gates Coral Lab. Kaneohe, HI.

Beasley, W. H., **Koval, A.V.** (2016, May) *Applying lessons from the Feb 2015 Portland workshop to a newer architecture*, IALSA Workshop, IALSA, Victoria, BC.

**Koval, A.V.**, Brown, C., Beasley, W. H., Hofer, S. (2015, October). *Visual tools for big analyses: Cross-study replication of bivariate growth models*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Applications, Victoria, CA.

**Koval, A.V.**, Beasley, W. H., (2015, July) *Tools for collaboration, tabling of results, and research synthesis*, Presentation at Sidney Sussex College, Cambridge UK.

**Koval, A. V.** (2015). *Imagining an interface for statistical modeling*. Presentation at Pecha Kucha, University of Victoria, Victoria, BC.

**Koval, A.V.** *Toolbox and Skillset of Reproducible Research*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC.

**Koval, A.V.** (2014, October) *Skill of Reproducible Research: Data Manipulation*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC

**Koval, A.V.** (2014, October) *Skill of Reproducible Research: Data Manipulation*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC

**Koval, A.V.** (2014, November) *Skill of Reproducible Research: Graph Production*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC

**Koval, A.V.** (2014, November) *Skill of Reproducible Research: Statistical Modeling*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC

**Koval, A.V.** (2014, December) *Skill of Reproducible Research: Dynamic Reporting*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC



Rodgers J.L., **Koval A.V.** (2011) *Epidemic Modeling of the Onset of Social Activities (EMOSA Models): Applications to Adolescent Religious Involvement*. Talk at the annual meeting of the Society of Multivariate Experimental Psychology, Norman, OK.

**Koval A.V.**, (2010, November) *Decrease of Fidelity: alternative conceptualization of the degrees of freedom*. Talk at Quantitative brown bag at University of Oklahoma, Norman

## SOFTWARE SKILLS

I work mostly in RStudio and GitHub.

Representative utility packages: *tidyr*, *dplyr*, *plyr*, *reshape2*, *ggplot2*, *ggally*, *knitr*, *rmarkdown*.

Representative modeling packages: *glm*, *nlme*, *lme4*, *glmulti*, *psych*.

Other modeling software: Mplus, SAS, SPSS.

## REPRESENTATIVE STATISTICAL COURSEWORK

course	taught by
<b>Latent Growth Curve modeling</b>	<i>Sonya K. Sterba</i>
<b>Multivariate Analysis</b>	<i>James H. Steiger</i>
<b>Multilevel Modeling</b>	<i>Kristopher J. Preacher</i>
<b>Applied Latent Class and Mixture modeling</b>	<i>Sonya K. Sterba</i>
<b>Applied Multivariate Statistical Analysis</b>	<i>Jorge Mendoza</i>
<b>Factor Analysis and SEM</b>	<i>Robert Terry</i>
<b>Measurement and Scaling</b>	<i>Joseph L. Rodgers</i>
<b>Quant Methods in Evaluation Research</b>	<i>Joseph L. Rodgers</i>