

CURRICULUM VITAE

ANDRIY V KOVAL

University of Central Florida
College of Community Innovation and Education
Department of Health Management and Informatics
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SUMMARY OF ACCOMPLISHMENTS

- 5 peer-reviewed publications
- 1 book chapter
- 2 refereed conference proceedings
- 1 published abstract
- 18 papers at the international, national, and regional refereed conferences
- 12 invited talks
- 12 professional presentations (non-refereed)
- 5 hackathons

EDUCATION

- 2012 - 2014 Doctor of Philosophy, Quantitative Methods
Peabody College of Education and Human Development, Vanderbilt University
Dissertation: "*A Graphical System for Longitudinal Modeling using Dynamic Documents: Application to NLSY97 Religiosity Data*"
Advisor: Joseph Lee Rodgers, Ph.D.
Members of the defense committee: James H. Steiger, Kristopher J. Preacher, Gary T. Henry
- 2008 – 2012 Residency at the 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.

ACADEMIC POSITIONS

2019 - present Assistant Professor
Department of Health Management and Informatics
College of Community Innovation and Education
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
Advisor: Kate Smolina, Ph.D.

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.

ACADEMIC AWARDS AND HONORS

- 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

RESEARCH AND SCHOLARLY ACTIVITIES

Please click on links to view the external source.

Research Interest & Foci

- Reproducible analytics and data visualization
- Health service utilization
- Longitudinal modeling

*Denotes student collaboration on scholarly publications

Dissertation

Koval, A. V. (2014). *A Graphical System for Longitudinal Modeling using Dynamic Documents: Application to NLSY97 Religiosity Data*. Vanderbilt University. ([link](#))

Book Chapters

Rodgers, J. L. & **Koval, A.** (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>)

Publications in Refereed Journals

National and International

5. Blanchette, M-A.; Cheng, I.; Saari, M.; Ghandour, K.; Aubrecht, K.; Haw, J.; Bailey, C.; **Koval, A.**; Liu, R., Manhas, K., Singal, D.; Mawani, F.; Syrowatka, A.; McConnell-Nzunga, J.; Petricca, K., Lai, J., Sim, M. (2019) Making Contributions and Defining Success: An eDelphi Study of the Inaugural Cohort of CIHR Health System Impact Fellows, Host Supervisors, and Academic Supervisors. *Healthcare Policy*, Vol.15 Special Issue ([link](#)). 5-year Impact Factor: **2.773**.
4. 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. (2019) A coordinated multi-study analysis of

the longitudinal association between handgrip strength and cognitive function in older adults. *The Journal of Gerontology: Psychological Sciences, Series B.* ([link](#)) 5-year Impact Factor: **3.911**

3. 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, Series A.* ([link](#)) 5-year Impact Factor: **5.811**
2. 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. ([link](#)) Impact Factor: 14.423
1. Kelly, A., Calamia, M., Koval, A., Muniz-Terrera, G., Piccinin, A.; Clouston, S., Hassing, L., Bennett, D., Johansson, B., Hofer, S. (2016) 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. ([link](#)) 5-year Impact Factor: 3.777

Articles Submitted for Publication in Refereed Journals

Embrett, M., **Koval, A.**, Liu, R., Lai, J. Aubrecht, K. Thinking together: The art and science of remote collaboration while becoming a Community of Fellows (in review). *Social Studies and Sciences* (submitted Feb, 2020)

*Jodh S. Pannu, Shirang A. Kulkarni, Varadraj P. Gurupur, **Andriy V. Koval**, Gabriel J. Merrin, Ayan Nasir, and Thomas T.H. Wan (in review) Predicting Healthcare Outcomes Using Random Forests: A Case Study Using Medicare Provider and Utilization Data. *Health Informatics Journal* (submitted Dec, 2019)

Refereed Conference Proceedings

Moselle, K. A., Robertson, S., & **Koval, A.** (2019). "Real-World" De-Identification of High-Dimensional Transactional Health Datasets. *Studies in Health Technology and Informatics*, 257, 319-324. ([link](#))

Muniz-Terrera, G., Robitaille, A., Čukić, 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. ([link](#))

Grant and External Funding

Florida Linking Individuals Needing Care (FL LINC), Funding Agency: Substance Abuse and Mental Health Services Administration (SAMHA), PI: Marc Karver, Co-PI: Kimberly Gryglewicz, Amount in Total: \$3,680,000, Contribution: **\$2,000**, Active participation period May 2019 – September 2019, **Role: Consultant**

Papers Presented at Refereed Professional Conferences

National & International

- Koval, A.**, Leamon, A., Smolina, K. (2019) *Suppressing Small Counts for Public Release: Applications of Reproducible Analytics in Chronic Disease Surveillance*. Poster presented at the annual conference of the Canadian Association for Health Services and Policy Research, Halifax, NS. ([link](#))
- Moselle, K. A., Robertson, S., & **Koval, A.** (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. ([link](#))
- 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*. (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. ([link](#))
- 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*. (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. ([link](#))
- Robitaille, A., Muniz-Terrera, G., van den Hout, A., Hoogendijk, E., **Koval, A.**, Rijnhart, J., Skoog, J., Hofer, S. (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. ([link](#))
- Robitaille, A., Cadar, D., **Koval, A.**, Jagger, C., B. Johansson, S. Hofer, A. Piccinin, G. Muniz-Terrera. *Is Cognitive Decline Before Death in the Oldest Old a Universal Phenomenon?* (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. ([link](#))
- Koval, A.**, Moselle, K. (2018) *Clinical Context Coding Scheme: Describing Utilization of Services of Island Health between 2007-2017*. Poster presented at the biannual conference of International Population Data Linkage Network. Banff, AB. ([link](#))
- Koval, A.**, Smolina, K., Moselle, K. (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. ([link](#))

Hoogendijk, E., Robitaille, A., van den Hout, A., Machado, R., Čukić, I., Hofer, S., **Koval, A.**, van der Noordt, M., Rijnhart, J., Skoog, J., Vermunt, L., & Muniz-Terrera, G. (2017) *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 29th REVES meeting, Santiago de Chile (Chile), May 17-19, 2017. ([link](#))

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.**, Van der Noordt, M., Piccinin, A.M., Rijnhart, J.J.M., Singh-Manoux, A., Skoog, J., Skoog, I., Vermunt, L., Muniz-Terrera, G. (2017). *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. ([link](#))

Koval, A., Beasley, W. H., Piccinin, A.M., Muniz-Terrera, G., Hofer, S. M., (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. ([link](#), [program](#))

Vendittelli, R., **Koval, A.**, Piccinin, A. M. (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. ([link](#))

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. (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. ([link](#))

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

Regional

Koval, A., Hofer, S., Moselle, K., Smolina, K. (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. ([link](#))

Koval A.V., Kim, J.K. (2008) *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) *Measuring reading automaticity in school setting*. Poster presented at the regional Southeastern Psychological Association, Nashville, TN.

State

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

Invited presentations

- Gryglewicz, K., **Koval, A.**, McNeil, M., Gurupur, V. (2019). Youth Suicide in Florida: Trends for the last decade. Prepared for 2021-2023 Florida Suicide Prevention Interagency Action Plan Committee, a planning committee tasked to provide strategic guidelines for the Suicide Prevention Coordinating Council (SPCC), Tallahassee, FL.
- Koval, A.** (2019) *Managing Data Analysis in RStudio using Project-Oriented workflow*. Invited workshop at the Health System Impact Fellowship training retreat by Canadian Institutes for Health Research. Toronto, Ontario. ([link](#))
- Koval, A.** (2019) *Implementing Reproducible Visualizations: Application of coloring book technique in a reproducible ggplot2 system*. Invited talk at the colloquium series by the department of Statistics and Data Science, UCF, Orlando, Florida ([link](#))
- Koval, A.** (2019) *Techniques for Reproducible Visualization in R: Graph as a Sequence of Three Functions*. Featured speaker at 2019 VADA Program Summer School ([link](#)) June 12, 2019. Winnipeg, Manitoba. ([link](#))
- Koval, A.** (2019) *Using GitHub for Data Science: Version Control, Project Management, Promotion*. Featured speaker at 2019 VADA Program Summer School ([link](#)) June 13, 2019. Winnipeg, Manitoba. ([link](#))
- Moselle, K., **Koval, A.** (2019, July) *Target Information Architecture*. Invited talk at the Institute on Aging and Lifelong Health, University of Victoria, British Columbia. ([link](#))
- Koval, A.**, Moselle, K.A. (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. ([link](#))
- Koval, A.** (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.**, Leamon, A., (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. ([link](#))
- Koval, A.** (2018). *When notebooks are not enough*. Invited talk at the Matrix Institute for Applied Data Science, University of Victoria, British Columbia. ([link](#))
- Koval, A.** (2018) *Visualizing Logistic Regression: Application of coloring book technique in a reproducible ggplot2 system*. Invited speaker at a Population Data BC webinar series ([link](#))
- Koval, A.**, Beasley, W.H. (2017) *Scientific Collaboration with GitHub*. Invited speaker. Hawaii Institute of Marine Biology. Gates Coral Lab. Kaneohe, HI. ([link](#))

Professional Presentations (non-refereed)

- Koval, A.,** Weiner, V. (2017) *Simulating realistic Electronic Health Records using BayesDB software*. Hackathon project during DARPA summer school on probabilistic programming for advanced machine learning. Arlington, VA ([link](#))
- Beasley, W. H., **Koval, A.** (2016) *Applying lessons from the February 2015 Portland workshop to a newer architecture*, IALSA Workshop, IALSA, Victoria, BC.
- Koval, A.,** Brown, C., Beasley, W. H., Hofer, S. (2015). *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. ([link](#))
- Koval, A.,** Beasley, W. H., (2015) *Tools for collaboration, tabling of results, and research synthesis*, Presentation at Sidney Sussex College, Cambridge UK.
- Koval, A.** (2015). *Imagining an interface for statistical modeling*. Presentation at Pecha Kucha, University of Victoria, Victoria, BC. ([link](#))
- Koval, A.** (2014) *Toolbox and Skillset of Reproducible Research*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC. ([link](#))
- Koval, A.** (2014) *Skill of Reproducible Research: Data Manipulation*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC ([link](#))
- Koval, A.** (2014) *Skill of Reproducible Research: Graph Production*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC ([link](#))
- Koval, A.** (2014) *Skill of Reproducible Research: Statistical Modeling*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC ([link](#))
- Koval, A.** (2014) *Skill of Reproducible Research: Dynamic Reporting*, Presentation at the Centre on Aging Colloquium Series, Optimizing Aging & Health: Methods & Application, Victoria, BC ([link](#))
- Koval A.,** (2012) *Decrease of Fidelity: alternative conceptualization of the degrees of freedom*. Talk at the colloquium of the Department of Psychology, University of Oklahoma, Norman. ([link](#))
- Rodgers J.L., **Koval A.** (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.

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. ([link](#))

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. ([link](#))

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. ([link](#))

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. ([link](#)).

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 ([link](#)).

TEACHING AND MENTORING

Student mentoring

Postdoctoral

Gabriel J. Merrin (UCF, Spring – Fall, 2019)

Graduate

Johd Pannu (UCF, Spring – Summer, 2019).

Courses Taught

University of Central Florida

College of Community Innovation and Education

HSA4191: *Fundamentals of Health Information Technology*

The origin, evolution and application of health information technology in today's healthcare industry This course provides students with foundational knowledge about health information technology and its utilization in the healthcare industry. (*Undergraduate, face-to-face, online*)

HIM6464C: *Epidemiology, Analytics, and Quality Management*

This course introduces epidemiological principles and analytics for enhancing utilization management, quality improvement, and outcome assessment in the service delivery system. (*Graduate, online*)

HSA6752: *Health Care Analytics*

Computer-based course focusing on analyzing health care data, including using data for decision making, process improvements, efficient health care delivery and preparing reports for other managers. (*Graduate, online*)

University of Victoria Faculty of Social Science

PSYC532: *Introduction to Statistical Modeling for Social Sciences.*

The course introduced the principles of statistical modeling and the logic of research design. Rooted in the principles of reproducibility and open science, the course organized applied labs as a public repository and GitHub (link) and promoted version control project management of data analysis. (*Graduate, face-to-face*)

University of Oklahoma College of Arts and Sciences

PSY 2113: *Understanding Statistics*

The course introduces statistical concepts and techniques commonly used in behavior science research. The course covers statistical terminology, analytics techniques for hypothesis testing (e.g. t-test, ANOVA, linear regression, etc.) and their interpretation in applied research. (*undergraduate, face-to-face*)

Teaching Enhancement Activities

IDL6543: *Interactive Distributed Learning for Technology-Mediated Course Delivery*

The course provides information related to pedagogical, logistical and technical aspects of teaching online. This course helps to prepare to participate in a successful online teaching and learning experience. UCF, Spring 2019.

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

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

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