OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

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NAME: Ross Jacobucci

eRA COMMONS USER NAME (credential, e.g., agency login): JACOBUCC

POSITION TITLE: Assistant Professor of Psychology

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)

| INSTITUTION AND LOCATION | DEGREE  (if applicable) | Completion Date  MM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| Luther College, Decorah, IA | BA | 6/2010 | Psychology (Honors) |
| University of Southern California, Los Angeles, CA | MA | 12/2015 | Psychology  (Quantitative Methods) |
| University of Southern California, Los Angeles, CA | PHD | Summer 2017 | Psychology  (Quantitative Methods) |
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**A. Personal Statement**

I have the expertise, leadership, training, expertise and motivation necessary to successfully carry out the proposed research project. I have a broad background in psychology, with specific training in clinical research, and an expertise in the application of quantitative methodology in the area of big data.

**B. Positions and Honors**

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| --- | --- |
| 2017 –  2015 – | Assistant Professor of Psychology, University of Notre Dame   * Area: Quantitative   Instructor, various workshops on exploratory data mining and structural equation modelling. |

## Other Experience and Professional Memberships

2017- Member, Association for Behavioral and Cognitive Therapies

2016- Member, Psychometric Society

2015- Member, Gerontological Society of America

Honors

|  |  |
| --- | --- |
| 2013 - 2017 | Ruth L. Kirschstein National Research Service Award |

**C. Contributions to Science**

**1.** Traditional forms of estimation in structural equation modeling is not particularly well equipped to test large models, both in the number of participants and variables. A large portion of my research has focused on the development and expansion of a method I have termed regularized structural equation modeling (RegSEM). RegSEM, implemented as the regsem package (Jacobucci, 2016) in R, provides researchers with the ability to penalize any parameter in a structural equation model. This allows researchers to estimate extremely large models and perform variable selection within the latent variable model framework. More specific applications of RegSEM include mediation models (Serang, Jacobucci, Brimhall, & Grimm, in revision) resulting in a method we termed exploratory mediation analysis via regularization, Bayesian modelling (Jacobucci & Grimm, 2017a), and in longitudinal models (Jacobucci & Grimm, 2017b).

Serang, S., **Jacobucci, R.,** Brimhall, K. C., & Grimm, K. J. (in press). Exploratory mediation analysis via regularization. *Structural Equation Modeling*.

Ammerman, B. A., **Jacobucci, R.,** Kleiman, E. M., Uyeji, L., & McCloskey, M. S. (in press). The relationship between nonsuicidal self-injury age of onset and severity of self-harm. *Suicide and Life Threatening Behavior*.

**Jacobucci, R.,** Grimm, K. J., & McArdle, J. J. (2017). A comparison of methods for uncovering sample heterogeneity: Structural equation model trees and finite mixture models*. Structural Equation Modeling,* 24. 270-282.

Jacobucci, R. (2017). regsem: Performs Regularization on Structural Equation Models (version 0.8.1) [Software]. Available from https://cran.r-project.org/web/packages/index.html

Grimm, K. J., **Jacobucci, R.,** McArdle, J. J. (January, 2017). Big data methods and psychological science. *Psychological Science Agenda*.

**Jacobucci, R.,** Grimm, K. J., & McArdle, J. J. (2016). Regularized structural equation modeling, *Structural Equation Modeling*, 23, 555-566. doi:10.1080/10705511.2016.1154793. PMCID: 4937830

2. A second area of research is the development and evaluation of data mining in psychological research. This has mainly focused on the use of Decision Trees (DTs) and their extensions (e.g. random forests). My dissertation evaluated the use of DTs, particularly in the generalizeability of the resultant tree structures. This work culminated in an R package (Jacobucci, 2017) that makes the application and evaluation easier for applied researchers. This work has further been extended to the creation of the longRPart2 that allows for the identification of clinically meaningful subgroups using DTs with mixed effects models for longitudinal data.

Jacobucci, R., Stewart, S., Abdolell, M., Serang, S., & Stegmann, G. (2017). longRPart2: Recursive

Partitioning of Longitudinal Data (version 0.0.1) [Software].

Available from https://cran.r-project.org/web/packages/longRPart2/index.html

Jacobucci, R. (2017). dtree: Decision Trees (version 0.2.3) [Software]. Available from

<https://cran.r-project.org/web/packages/dtree/index.html>

3. My final focus of research has been the application of data mining for clinical psychology research, specifically suicide and non-suicidal self-injury. For example, I used conditional inference trees to derive age cutoffs for assessing the severity of non-suicidal self-injury and suicidality (Ammerman, Jacobucci, Kleiman, Uyeji, & McCloskey, in press). In a similar vein, I applied both lasso regression and random forests to perform subset selection and quantify variable importance in predicting the non-suicidal self-injury age of onset (Ammerman, Jacobucci, & McCloskey, under review). This application validated the findings across methods, and increased the confidence in our findings. Furthermore, as a multivariate generalization of decision trees, I used structural equation model trees to identify cutoffs for DSM-5 criteria for non-suicidal self-injury (Ammerman, Jacobucci, Kleiman, Muehlenkamp, & McCloskey, 2016). This was the first study of its kind, and allowed for us to search for optimal cutoffs in relationship to a meaningful multivariate outcome (one-factor model).

Ammerman, B. A., Jacobucci, R. , & McCloskey, M. S. (in press). Using exploratory data mining to identify important predictors of non-suicidal self-injury frequency. Psychology of Violence.

Ammerman, B. A., **Jacobucci, R.,** Kleiman, E. M., Uyeji, L., & McCloskey, M. S. (in press). The relationship between nonsuicidal self-injury age of onset and severity of self-harm. *Suicide and Life Threatening Behavior*.

Ammerman, B. A., **Jacobucci, R.,** Kleiman, E. M., Muehlenkamp, J. J., & McCloskey, M. S. (2016). Development and validation of empirically derived frequency criteria for NSSI disorder using exploratory data mining, *Psychological Assessment.*

**D. Additional Information: Research Support and/or Scholastic Performance**