

# Christopher David Desjardins

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## CONTACT INFORMATION

4921 Elliot Avenue  
Minneapolis, MN 55417  
USA

+1 612 500-7719  
cdesjard@umn.edu  
<https://cddesja.github.io>

## EDUCATION

### Ph.D. in Quantitative Methods in Education

University of Minnesota, May 2013

- Dissertation Title: “Evaluating the Performance of Two Competing Models Of School Suspension Under Simulation - The Zero-Inflated Negative Binomial and the Negative Binomial Hurdle”
- Advisors: Michael R. Harwell and Adam J. Rothman

### M.S. in Statistics

University of Minnesota, December 2012

- Master’s Title: “Modeling Zero-Inflated and Overdispersed Count Data: An Empirical Study of School Suspensions”
- Advisor: Adam J. Rothman

### B.S. in Biology (Summa Cum Laude)

University of Maine, May 2002

## RESEARCH INTERESTS

Big data  
Statistical graphics  
R software development  
Machine learning techniques  
Risk and resilience with a focus on homeless and highly mobile children

## TEACHING EXPERIENCE

### University of Minnesota

Statistical Analysis Using Structural Equation Methods (EPSY 8266)  
Applied Latent Variable Modeling  
Introductory Statistical Methods (EPSY 5251)

Spring 2019  
Summer 2016  
Fall 2012

### Reykjavik University

Tests and Measurement in Psychology (E-411 PRMA)

Spring & Fall 2015

### University of Iceland

Statistical Consulting  
Item Response Theory

Fall 2015  
Spring 2014

## GRANTS

*Formative Assessment System for Teachers (FAST): Scaling up Data-Based Decisions and the Teacher-Scientist Model.*

US Department of Education - OSEP (PI: Theodore J. Christ)  
Investigator  
2018 - Present

*Decision Rule Research Project: Curriculum-Based Measurement in Reading.*  
IES Goal 5 (PI: Theodore J. Christ)  
Investigator  
2016 - Present

*Improving and Evaluating Resource Utilisation in Icelandic Waters through Ecosystem Modelling.*  
 Icelandic Research Fund (PI: Gunnar Stefansson)  
 Co-Principal Investigator  
 2015

## RESEARCH EXPERIENCE

### **Associate Scientist/Statistician**

2017 – Present

Oregon Research Institute  
 Eugene, OR

- Investigator on an IES Goal 5 grant
  - Developed novel Bayesian approach to model progress monitoring data
  - Developed data visualization tool to communicate model findings
  - Published one manuscript and authored over 50 internal reports
- Statistician on several federally funded NIH eating disorder grants
  - Analyzed eating disorder data with classification trees, random forests, bagging, mixed effects models, and structural equation models
  - Published two manuscripts

### **Research Associate**

University of Minnesota, St. Paul, MN  
 Center for Applied Research and Educational Improvement  
 Research Methodology and Consulting Center

2015 - 2017  
 2018 - Present

- Investigator on a USDE OSEP grant
  - Analyzed progress monitoring and screening data with mixed effects models
  - Prepared grant reports
- Statistical consultant for two laboratories in the Institute of Child Development
  - Mentor and teach graduate students statistics and R programming
  - Served on two PhD committees
  - Authored three manuscripts with graduates with two more under review
- Lead evaluator for Andamio Games CellEnergy iPad app and the Sankofa reading program
  - Authored one manuscript with Andamio Games
- Secured funding as external evaluator on an NSF SBIR Phase II grant; on an NSF SSTEM grant; for two Minnesota State Arts Board grants, and from the Legislative-Citizen Commission on Minnesota Resources.

### **Postdoctoral Researcher**

2013 – 2015

Science Institute  
 University of Iceland, Reykjavik, Iceland

- Implemented the Atlantis marine ecosystem model for Iceland
- Developed a graphical tool for calibrating and tuning the parameters in Atlantis and released this on GitHub
- Secured Icelandic Research Fund grant, along with Dr. Stefansson, to support the continued development of ecosystem models in Iceland
- Authored two manuscripts

**Minnesota Interdisciplinary Training in Education Research Fellowship** 2008 – 2012  
University of Minnesota, Minneapolis, MN

- Received a four-year fellowship from IES to conduct multidisciplinary research in education
- Collaborated with developmental researchers in child development and psychology
- Modeled longitudinal academic data from a large, urban school district with a focus on home-less highly students
- Modeled the longitudinal development of thought problems in children of bipolar parents
- Modeled the longitudinal development of the domain of work competence
- Authored three manuscripts

**Independent Statistical Consultant** 2010 – Present  
Minneapolis, Minnesota

PROFESSIONAL  
EXPERIENCE

- Consulted for the Improve Group, Minnesota Department of Health, Minneapolis Public Schools, Lutheran Social Services, Bridgeworks, Capella University, and the Icelandic Testing Company.
- Provided statistical and research design advice
- Ran various statistical and psychometric models
- Authored technical and non-technical reports
- Developed and analyzed surveys
- Supervised contractors
- Managed projects and budgets.

JOURNAL ARTICLES

PUBLISHED

- DePasquale, C.E., Olsen, A., **Desjardins, C. D.**, Bruce, J., Pears, K.C., Gunnar, M.R., & Fisher, P.A. (in press). Examining the psychometric properties of the Parent Daily Report questionnaire. *International Journal of Behavioral Development*. doi: 10.1177/0165025419844030.
- Stice, E., **Desjardins, C. D.**, Shaw, H., & Rohde, P. (2019). Moderators of two dual eating disorder and obesity prevention programs. *Behaviour Research and Therapy*, 118, 77 – 86. doi: 10.1016/j.brat.2019.04.002.
- Perry, N. B., Parenteau, A. M., Donzella, B., **Desjardins, C. D.**, & Gunnar, M. R. (2019). Emotion regulation and cortisol reactivity during a social evaluative stressor: A study of post-institutionalized youth. *Developmental Psychobiology*.
- Schleisman, K. B., Guzey, S. S., Lie, R., Michlin, M., **Desjardins, C. D.**, Shackleton, H. S., Schwerdfeger, A. C., Michalowski, M., & Dubinsky, J. (2018). Learning neuroscience with technology: A scaffolded, active learning approach. *Journal of Science Teacher Education*, 27, 566 – 580. doi: 10.1007/s10956-018-9748-y.
- Leneman, K. B., Donzella, B., **Desjardins, C. D.**, Miller, B. S., & Gunnar, M. R. (2018). The slope of cortisol from awakening to 30 min post-wake in post-institutionalized children and early adolescents. *Psychoneuroendocrinology*, 96, 93 – 99. doi: 10.1016/j.psyneuen.2018.06.011
- Sturludottir, E., **Desjardins, C. D.**, Elvarsson, B., Fulton, E. A., Logeman, K. & Stefansson, G. (2018). End-to-end model of Icelandic waters using the Atlantis framework: Exploring system dynamics and model reliability. *Fisheries Research*, 207, 9 – 24. doi: 10.1016/j.fishres.2018.05.026
- Rohde, P., **Desjardins, C. D.**, Arigo, D., Shaw, H., & Stice, E. (2018). Mediators of two selective prevention interventions targeting both obesity and eating disorders. *Behaviour Research and Therapy*, 106, 8 – 17. doi: 10.1016/j.brat.2018.04.004.

15. Stice, E. & **Desjardins, C. D.** (2018). Interactions between risk factors in the prediction of onset of eating disorders: Exploratory hypothesis generating analyses. *Behaviour Research and Therapy*, 105, 52 – 62. doi: 10.1016/j.brat.2018.03.005
14. Christ, T. J. & **Desjardins, C. D.** (2017). Curriculum-based measurement of reading: An evaluation of frequentist and Bayesian methods to model progress monitoring data. *Journal of Psychoeducational Assessment*, 36(1), 55 – 73. doi: 10.1177/0734282917712174
13. Labella, M. H., Narayan, A. J., McCormick, C. M., **Desjardins, C. D.**, & Masten, A. S. (2017). Risk and adversity, parenting quality, and children’s social-emotional adjustment in families experiencing homelessness. *Child Development*. doi: 10.1111/cdev.12894
12. Reid, B., Miller, B., Dorn, L., **Desjardins, C. D.**, Donzella, B., & Gunnar, M. R. (2017). Early-growth faltering in post-institutionalized youth and later anthropometric and pubertal development. *Pediatric Research*, 82(2), 278 – 874. doi: 10.1038/pr.2017.35
11. Nyamweya, C. S., **Desjardins, C. D.**, Sigurdsson, S., Tomasson, T., Taabu-Munyaho, & Stefansson, G. (2016). Simulation of Lake Victoria circulation patterns using regional ocean modeling system (ROMS). *PLoS ONE*, 11(3), e0151272. doi: 10.1371/journal.pone.0151272
10. **Desjardins, C. D.** (2016). Modeling zero-inflated and overdispersed count data: An empirical study of school suspensions. *Journal of Experimental Education*, 84 (3), 449 – 472. doi: 10.1080/00220973.2015.1054334.
9. Kimmons, R., Miller, B., Amador, J., **Desjardins, C. D.**, and Hall, C. (2015). Technology integration coursework and finding meaning in pre-service teachers reflective practice. *Educational Technology & Development*, 63(6), 809 – 829. doi: 10.1007/s11423-015-9394-5
8. Bowe, A., **Desjardins, C. D.**, Covington-Clarkson, L., & Lawrenz, F. (2015). Urban elementary single-sex math classrooms: Mitigating stereotype threat for African American girls. *Urban Education*, 1 – 30. doi: 10.1177/0042085915574521
7. **Desjardins, C. D.** (2013). Evaluating the performance of two competing models of school suspension under simulation - the zero-inflated negative binomial and the negative binomial hurdle. Dissertation paper.
6. Klimes-Dougan, B., **Desjardins, C. D.**, James, M. G., Narayan, A., Long, J., Cullen, K. R., Gold, P. W. & Martinez, P. P. (2013). The development of thought problems: A family risk study of offspring of bipolar parents. *Development and Psychopathology*, 25(4), 1079 – 1091. doi: 10.1017/S0954579413000382
5. Cutuli, J. J., **Desjardins, C. D.**, Herbers, J. E., Long, J. D., Heistad, D., Chan, C.-K., Hinz, E., & Masten, A. S. (2013). Academic Achievement Trajectories of Homeless and Highly Mobile Students: Resilience in the Context of Chronic and Acute Risk. *Child Development*, 84(3), 841 – 857. doi 10.1111/cdev.12013
4. Masten, A. S., Herbers, J. E., **Desjardins, C. D.**, Cutuli, J. J., McCormick, C. M., Sapienza, J. K., Long, J. D., & Zelazo, P. D. (2012). Executive function skills and school success in young children experiencing homelessness. *Educational Researcher*, 41(9), 375 – 384. doi: 10.3102/0013189X12459883
3. Liou, P., **Desjardins, C. D.**, & Lawrenz, F. (2010). Influence of scholarships on STEM teachers: Cluster analysis and characteristics. *School Science and Mathematics*, 110(3), 128 – 143. doi: 10.1111/j.1949-8594.2010.00016.x
2. Masten, A., **Desjardins, C. D.**, McCormick, C., Kuo, S., & Long, J. D. (2010). The significance of childhood competence and problems for adult success in work: A developmental cascade analysis. *Development and Psychopathology*, 22(3), 679 – 694. doi: 10.1017/S0954579410000362
1. Masten, A., Long, J. D., Kuo, S., McCormick, C., & **Desjardins, C. D.** (2009). Developmental models of strategic intervention. *European Journal of Developmental Science*, 3(3), 282 – 291.

- UNPUBLISHED Doyle, C., Lasch, C., Teska, E., **Desjardins, C. D.**, Jacob, S., Wolff, J., & Elison, J. (Under review). Phenoscreening: A Developmental Approach to Research Domain Criteria-Motivated Sampling. Submitted to Biological Psychiatry.
- Desjardins, C. D.** & Bulut, O. (In prep). Profile analysis of multivariate data in R: An introduction to the profileR package. Submitted to the R Journal.
- BOOKS **Desjardins, C. D.**, & Bulut, O. (2018). Handbook of Educational Measurement and Psychometrics Using R. CRC Press.
- BOOK CHAPTERS Amador, J., Kimmons, R., Miller, B., **Desjardins, C. D.**, & Hall, C. (2015). Preparing preservice teachers to become self-reflective of their own technology integration practices. In M. Niess & H. Gillow-Wiles (Eds.) Handbook of Research on Teacher Education in the Digital Age. Hershey, PA: IGI Global.
- Lawrenz, F., & **Desjardins, C. D.** (2011). Trends in government-funded multi-site K-12 Science program evaluation. In B. Fraser, K. Tobin, & C. McRobbie (Eds.), Second international handbook of science education. Springer.
- PRESENTATIONS Reid, B., Miller, B., Dorn, L., **Desjardins, C. D.**, Donzella, B., & Gunner, M. (2017, April). Early-growth faltering in post-institutionalized youth and later anthropometric and pubertal development. Paper presented at the 99th Annual Meeting of the Endocrine Society, Orlando, FL.
- Reid, B., Miller, B., Dorn, L., **Desjardins, C. D.**, & Gunner, M. (2017, April). Does early stress and growth stunting predict obesity, internalizing symptoms and early puberty in youth adopted from orphanages. Paper presented at the 2017 Society for Research in Child Development, Austin, TX.
- Thibodeau, E., Labella, M., **Desjardins, C. D.**, Masten, A., & Barnes, A. (2017, April). Environmental sensitivity to socio-demographic risk: Identifying gene expression-by-environment interactions. Paper presented at the 2017 Society for Research in Child Development, Austin, TX.
- Sturludottir, E., **Desjardins, C. D.**, Logemann, K., Marteinsdottir, G., & Stefansson, G. (2016, September). Integrated ecosystem model of Icelandic waters. Paper presented at the 2016 ICES conference, Vienna, Austria.
- Desjardins, C. D.** (2015, June). Implementing a whole of system ecosystem model for the Icelandic waters. Paper presented at the 2015 Nordic-Baltic Biometric Conference, Reykjavik, Iceland.
- Chang, Y.-F., **Desjardins, C. D.**, Davison, M. L., & Chan, C.-K. (2012, April). A multilevel approach to identifying criterion-related profile patterns. Paper presented at the 2012 meeting of the American Educational Researcher Association, Vancouver, Canada.
- Desjardins, C. D.**, Long, J.D., Chan, C.K., Hinz, E., Heistad, D., & Masten, A. S. (2011, April). Suspensions in homeless and highly mobile students: A multilevel longitudinal study. Paper presented at the 2011 meeting of the American Educational Researcher Association, New Orleans, LA.

Davenport, E., Chan, C.-K., & **Desjardins, C. D.** (2010, May). Profile analysis. Workshop presented at the 2010 Quantitative Methods in Education Summer Institute, Minneapolis, MN.

Masten, A. S., **Desjardins, C. D.**, McCormick, C. M., Kuo, S. I.-C., & Long, J. D. (2010, March). The significance of childhood competence for adult success in work: A developmental cascade analysis. Paper presented at the 2010 meeting of the Society for Research on Adolescence, Philadelphia, PA.

Cutuli, J. J., Obradovic, J., Herbers, J. E., **Desjardins, C. D.**, & Masten, A. S. (2009, April). Risk and protective factors for academic success in homeless/highly mobile children. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Denver, CO.

#### POSTERS

Merrick, J.S., Labella, M., **Desjardins, C. D.**, Barnes, A., & Masten, A.S. Child Life Challenges Scale: Evidence of validity as a lifetime adversity measure. Poster presented at the 2017 Biennial Meeting of the Society for Research on Child Development, Austin, TX.

**Desjardins, C. D.**, & Bulut, O. (2016, June). Profile analysis of multivariate data using the profileR package. Poster presented at the 2016 userR conference, Palo Alto, CA.

Wenzel, A. J., Sapienza, J. K., Carlson, S. M., **Desjardins, C. D.**, Rothbart, M. K., & Masten, A. S. (2013, April). Developing a parent report scale of executive function in early childhood. Poster presented at the 2013 meeting of the Society for Research in Child Development, Seattle, WA.

**Desjardins, C. D.**, Cutuli, J. J., Herbers, J. E., Chan, C.-K., Hinz, E., Heistad, D., Long, J. D., & Masten, A. S. (2011, September). Suspensions in homeless and highly mobile students: A multilevel longitudinal study. Poster presented at the 2011 fall meeting of the Society for Research on Educational Effectiveness, Washington, DC.

Klimes-Dougan, B., **Desjardins, C. D.**, Long, J. D., Narayan, A. J., Lee, C.-Y. S., Gold, P. W., & Martinez, P.E. (2011, April) Thought problems across development: A family risk study of descendants of a bipolar parent. Poster presented at the 2011 meeting of the Society for Research in Child Development, Montreal, Quebec.

McCormick, C. M., **Desjardins, C. D.**, Kuo, S. I., Long, J. D., & Masten, A. S. (2010, July). Competence in romantic relationships: A developmental cascades analysis spanning 20 years. Poster presented at the International Society for the Study of Behavioural Development in Lusaka, Zambia.

**Desjardins, C. D.**, Long, J. D., & Chan, C. K. (2010, June). Exploring delinquency in high risk students using longitudinal zero-inflated Poisson Bayesian multilevel models. Poster presented at the 2010 meeting of the Institute of Education Sciences Research Conference, Washington, DC.

**Desjardins, C. D.**, Long, J. D., Heistad, D., Cutuli, J. J., Herbers, J. E., Chan, C. K., Hinz, E., McCormick, C. M., & Masten, A. S. (2009, June). Strategies for comparative growth modeling of achievement in homeless/highly mobile students. Poster presented at the 2009 meeting of the Institute of Education Sciences Research Conference, Washington, DC.

McCormick, C. M., Kuo, S. I., **Desjardins, C. D.**, Long, J. D., & Masten, A. S. (2009, April). Meditational role of social competence on the significance of parenting quality in childhood for work competence in early adulthood. Poster presented at the 2009 meeting of the Society for Research in Child Development, Denver, CO.

Kuo, S. I., McCormick, C. M., **Desjardins, C. D.**, Long, J.D., & Masten, A.S. (2009, April). Differential pathways to work success in early adulthood. Poster presented at the 2009 meeting of the Society for Research in Child Development, Denver, CO.

JOURNAL REVIEWER	<ul style="list-style-type: none"> <li>• Psychological Methods</li> <li>• Development and Psychopathology</li> <li>• Child Development</li> <li>• PLOS One</li> <li>• Journal of Abnormal Child Psychology</li> <li>• Developmental Psychology</li> <li>• Learning and Individual Differences</li> <li>• Proceedings of the National Academy of Sciences</li> <li>• Frontiers in Education</li> </ul>
PANEL REVIEWER R PACKAGES	<ul style="list-style-type: none"> <li>• Institute of Education Sciences (2018 – Present)</li> <li>• bower. Like the bowerbird, a hoarder of functions <a href="https://github.com/cddesja/bower">https://github.com/cddesja/bower</a>.</li> <li>• hemp. A companion package for the <i>Handbook of Educational Measurement and Psychometrics Using R</i> <a href="https://github.com/cddesja/hemp">https://github.com/cddesja/hemp</a>.</li> <li>• profileR. Profile analysis of multivariate data <a href="https://cran.r-project.org/web/packages/profileR/index.html">https://cran.r-project.org/web/packages/profileR/index.html</a>.</li> <li>• R4Atlantis. Functions to prepare Atlantis models <a href="https://github.com/cddesja/R4Atlantis">https://github.com/cddesja/R4Atlantis</a>.</li> <li>• scaffolder. Teach statistics through simulation and scaffolding <a href="https://github.com/cddesja/scaffolder">https://github.com/cddesja/scaffolder</a>.</li> </ul>
VISUALIZATIONS USING R	<ul style="list-style-type: none"> <li>• Decision rule research project dashboard <a href="https://carei.shinyapps.io/drrp_bayesian_model/">https://carei.shinyapps.io/drrp_bayesian_model/</a></li> <li>• Minnesota Student Survey dashboard <a href="https://carei.shinyapps.io/msst_2013-2016/">https://carei.shinyapps.io/msst_2013-2016/</a></li> <li>• Visualizing Atlantis toolbox <a href="https://github.com/mareframe/vat">https://github.com/mareframe/vat</a>.</li> </ul>
SOFTWARE SKILLS	<ul style="list-style-type: none"> <li>• Proficient with R; Linux, Mac OS X, and Windows; SPSS; MPlus; and MS Office.</li> <li>• Experience with Python, SQL, C, HTML/CSS, and Javascript.</li> </ul>