

Richard Border
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Education

- Present Doctoral candidate
Behavioral, Psychiatric, and Statistical Genetics
Advised by Matthew C. Keller
Department of Psychology and Neuroscience, University of Colorado Boulder
- 2018 Master of Science
Applied Mathematics
Advised by Stephen Becker
Department of Applied Mathematics, University of Colorado Boulder
- Master of Arts
Behavioral, Psychiatric, and Statistical Genetics
Advised by Soo Hyun Rhee
Department of Psychology and Neuroscience, University of Colorado Boulder
- 2011 Bachelor of Arts
Japanese Language and Literature
Advised by Terry Kawashima
Department of East Asian Studies, Wesleyan University

Research interests

- **Statistical genetics and applied mathematics.** Variance components analysis, numerical linear algebra, stochastic algorithms, iterative matrix methods.
- **Psychology and psychometrics.** Psychopathology, measurement error, power analysis.
- **Metascience.** Publication bias, falsifiability, identification of spurious findings.

Peer-reviewed publications

- 2019 **Border, R.**, Johnson, E.C., Evans, L.M., Berley, N., Sullivan, P.F., Keller, M.C.. No support for historic candidate gene or candidate gene-by-interaction hypotheses for major depression across multiple large samples. *In press* at the *American Journal of Psychiatry*.
- Border, R.**, Smolen, A., Corley, R., Stallings, M., Brown, S., Conger, R., Derringer, J., Donnellan, B., Haberstick, B., Hewitt, J., Hopfer, C., Krauter, K., McQueen, M., Wall, T., Keller, M., Evans, L.. Imputation of Behavioral Candidate Gene Repeat Polymorphisms in 486,551 Publicly-Available UK Biobank Individuals. *bioRxiv*. 2018 Jun 29;358267. *In press* at the *European Journal of Human Genetics*. <https://doi.org/10.1101/358267>
- 2018 **Border, R.**, Corley, R.C., Brown, S.A., Hewitt, J.K., Hopfer, C.J., Williams, S.K., Rhea, S., Shriver, C.L., Stallings, M.C., Wall, T.L., Woodward, K.E., Rhee, S.H.. “Independent predictors of mortality in adolescents ascertained for conduct disorder and substance use problems, their siblings, and community controls.” *Addiction*. <https://doi.org/10.1111/add.14366>

Border, R., Corley, R.C., Brown, S.A., Hewitt, J.K., Hopfer, C.J., Stallings, M.C., Wall, T.L., Young, S.E., Rhee, S.H.. “Predictors of adult outcomes in clinically- and legally-referred youth with antisocial behavior.” *PLOS ONE*. <https://doi.org/10.1371/journal.pone.0206442>

2017 Johnson, E.C., **Border, R.**, Melroy-Greif, W.E., de Leeuw, C., Ehringer, M.A., Keller, M.C.. “No evidence that schizophrenia candidate genes are more associated with schizophrenia than non-candidate genes.” *Biological Psychiatry*. <http://dx.doi.org/10.1016/j.biopsych.2017.06.033>

Border, R. and Keller, M.C.. “Fundamental Problems with Candidate Gene-by-Environment Interaction Studies.” *Journal of Child Psychology and Psychiatry*. <http://dx.doi.org/10.1111/jcpp.12669>

Master’s thesis

- **Border, R.**.. "Stochastic Lanczos Likelihood Estimation of Genomic Variance Components". Applied Mathematics Graduate Theses & Dissertations. 120. https://scholar.colorado.edu/appm_gradetds/120

Presentations

2018 **Border, R.**, Johnson, E.C., Evans, L.M., Berley, N., Sullivan, P.F., Keller, M.C. (Paper presentation). “Quantitative reconciliation of GWAS and candidate gene findings: measurement error, nonlinearity, and artifactual results”. *Accepted* for the 48th meeting of the Behavior Genetics Association in Boston, MA. (Talk delivered by M.C. Keller due to illness)

Border, R., Johnson, E.C., Berley, N., Medland, S.E., Sullivan, P.F., Keller, M.C. (Poster). “Examining the relevance of canonical candidate genes for major depression”. *Accepted* for the 48th meeting of the Behavior Genetics Association in Boston, MA.

Evans, L.M., **Border, R.**, du Pont, A., Friedman, N.P., Johnson, E., Yang, J., Visscher, P., Keller, M.C. (Symposium talk). “Exploring the genetic architecture of psychiatric disorders using partitioned heritability approaches”. Presented by Luke Evans at the *World Congress of Psychiatric Genetics*, October 2018, Glasgow, Scotland.

2017 **Border, R.**, Johnson, E.C., Berley, N., Sullivan, P.F., Keller, M.C. (Poster). “Discrepancies between candidate gene and genome-wide studies of complex traits and endophenotypes.” Presented at the 25th annual meeting of the World Congress of Psychiatric Genetics, Orlando, Florida, October 13-17, 2017

Park, A. L., Tsai, K. H., Guan, K., **Border, R.**, and Chorpita, B. F. (Talk). “Unintended consequences of evidence-based treatment policy reform.” In *Use of Evidence in Mental Health Treatment and Clinical Decision-Making*. Symposium held at the 4th Biennial Society for Implementation Research Collaboration Conference, Seattle, WA.

2016 Johnson, E.C., Melroy-Greif, W.E., **Border, R.**, Keller, M.C., Ehringer, M.A. (Poster). “Examining 25 classic schizophrenia candidate genes in the context of GWAS data: evidence for relevance?”. Presented at the 2016 meeting of the American Society of Human Genetics in Vancouver, British Colombia.

2015 **Border, R.**, Sawaya, S., Huggett, S., Brown, S.A., Wall, T.L., and Stallings, M.C. (Poster). “Sensitivity of random forests algorithm to population stratification in GWAS data”. Presented at the 45th annual meeting of the Behavior Genetics Association in San Diego, CA.

Honors and Awards

- 2016–2019 National Institute of Mental Health Trainee T32 MH016880
Selected by faculty training committee thrice consecutively (maximum number of times awarded to any graduate student)
Institute for Behavioral Genetics, University of Colorado Boulder
- 2018 Behavior Genetics Association Travel Award
Behavior Genetics Association
- Departmental Travel Grant
Department of Psychology and Neuroscience, University of Colorado Boulder
- 2017 United Government of Graduate Students Individual Travel Award
University of Colorado Boulder Graduate School
- 2015–2019 Predoctoral Fellowship
Institute for Behavioral Genetics, University of Colorado Boulder

Peer Review

I have reviewed articles for the following journals:

- *Alcoholism: Clinical and Experimental Research*
- *American Journal of Medical Genetics Part B: Neuropsychiatric Genetics*
- *BMC Psychiatry*
- *Genes, Brain and Behavior*
- *Molecular Psychiatry*
- *Psychological Bulletin*
- *Psychoneuroendocrinology*

Teaching

- 2018 Mathematical Statistics (Combined Undergraduate and Graduate Sections)
Course Assistant, Department of Applied Mathematics.
- Statistical Methods (Combined Undergraduate and Graduate Sections)
Course Assistant, Department of Applied Mathematics.
- 2016 Statistical Programming with R (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- Statistics II (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- 2015 Introduction to Statistics (Undergraduate)
Teaching Assistant, Department of Psychology and Neuroscience.
- Statistical Programming with R (Graduate)
Teaching Assistant, Department of Psychology and Neuroscience.