

# Jonathan Stewart

## CONTACT INFORMATION

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## EDUCATION

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**Ph.D. in Statistics** (2020), *Rice University*

**Thesis:** Consistent estimation of high-dimensional random graph models with dependent edge variables.

**Advised by** Dr. Michael Schweinberger.

**M.A. in Statistics** (2018), *Rice University*

**B.A. in Statistics** (2013), *Rice University*

## PUBLISHED PAPERS AND PAPERS IN PRESS

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1. BABKIN, S., **Stewart, J.**, LONG, X., AND SCHWEINBERGER, M. Large-scale estimation of random graph models with local dependence. *Computational Statistics and Data Analysis*, to appear (2020+).
2. SCHWEINBERGER, M., KRIVITSKY, P. N., BUTTS, C. T., AND **Stewart, J.** Exponential-family models of random graphs: Inference in finite-, super-, and infinite-population scenarios, *Statistical Science*, to appear (2020+). [PDF]
3. **Stewart, J.** Consistent estimation of high-dimensional random graph models with dependent edge variables, Ph.D. Thesis, *Rice University* (2020).
4. SCHWEINBERGER, M., AND **Stewart, J.** Concentration and consistency results for canonical and curved exponential-family models of random graphs. *The Annals of Statistics*, 48 (2020), 374–396. [PDF]
5. **Stewart, J.**, SCHWEINBERGER, M., MORRIS, M., AND BOJANOWSKI, M. Multilevel network data facilitate statistical inference for curved ergms with geometrically weighted terms. *Social Networks*, 59 (2019), 98–119. [PDF]
6. CAMPBELL, I. M., **Stewart, J. R.**, JAMES, R. A., LUPSKI, J. R., STANKIEWICZ, P., OLOFSSON, P., AND SHAW, C. A. Parent of origin, mosaicism, and recurrence risk: Probabilistic modeling explains the broken symmetry of transmission genetics. *The American Journal of Human Genetics*, 95 (4) (2014), 345–359. [PDF]

## PAPERS IN PREPARATION

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7. **Stewart, J.** AND SCHWEINBERGER, M. Scalable estimation of random graphs with dependent edges in high-dimensional settings, in preparation (2020+).
8. FUJIMOTO, K., **Stewart, J.**, WESTHERIM, J., BRAUCHLE, N., HALLMARK, C., BENBOW, N., D'AQUILA, R., SCHNEIDER, J.A., SCHWEINBERGER, M. Characterizing hotspot HIV transmission networks, in preparation (2020+).

## SOFTWARE

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**R package mlergm** (*Creator, author, maintainer*)

Exponential-family random graph models for multilevel network data with known structure

More than 8,000 downloads since December, 2018

**R package hergm** (*Author*)

Hierarchical exponential-family random graph models with local dependence

More than 48,000 downloads

## INVITED PRESENTATIONS

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**2020 Joint Statistical Meetings, Philadelphia, PA**

*A Probabilistic Framework for Models of Dependent Network Data, with applications to brokerage in social networks*

**2020 Department of Mathematics, Tulane University**

*A Probabilistic Framework for Models of Dependent Network Data, with Statistical Guarantees*

**2020 Department of Statistics and Data Science, Cornell University**

*A Probabilistic Framework for Models of Dependent Network Data, with Statistical Guarantees*

**2020 Department of Statistical Science, Southern Methodist University**

*A Probabilistic Framework for Models of Dependent Network Data, with Statistical Guarantees*

**2020 Department of Statistics, Florida State University**

*A Probabilistic Framework for Models of Dependent Network Data, with Statistical Guarantees*

## CONTRIBUTED PRESENTATIONS

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**2019 CMStatistics, London, UK**

*Generalized  $\beta$ -models with dependent edges and parameter vectors of increasing dimension*

**2019 International Sunbelt Social Network Conference, Montreal, CA**

*Multilevel ERGMs with overlapping subsets of nodes: models, methods, and statistical theory*

**2012 Joint Statistical Meetings, San Diego, CA**

*Graphical inference and the hanging rootogram*

## WORKSHOPS

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Cancelled due to COVID

**2020 Co-organizer, Workshop on Multilevel and Hierarchical Exponential-Family Random Graph Models With Local Dependence**

*International Sunbelt Social Networks Conference, Paris, France*

*(required by NSF award DMS-1812119)*

## AWARDS

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**2019 Recipient of the James R. Thompson Student Award, Rice University**

*Awarded annually to up to two PhD students in the Department of Statistics for excellence in research*

**Travel Award, Department of Statistics, Rice University**

*Funding to attend and present at the 2019 CMStatistics conference*

**Travel Award, International Network for Social Network Analysis**

*Funding to attend and present at the 2019 INSNA Sunbelt conference in Montreal*

**Travel Award, Department of Statistics, Rice University**

*Funding to attend and present at the 2019 INSNA Sunbelt conference in Montreal*

**2012 Duncan College Master's Service Award, Rice University**

*Awarded once annually for outstanding service to the university and Duncan College*

**RESEARCH GRANTS**

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**2018-2019 Consultant: NIH / NIMH award 1R01MH100021**

*YMAP: Young Men's Affiliation Project of HIV risk and prevention venue*

PIs: Kayo Fujimoto, UTHealth Science Center, Houston and John A. Schneider, University of Chicago

**SERVICE TO DEPARTMENT**

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**Local co-organizer**

*A Symposium on Optimal Stopping Time, June 25-29, 2018*

<http://www.optimalstopping.com>

**Department Representative to the Graduate Student Association**

*Statistics department voting representative (Academic years 2014-2015 and 2015-2016)*

**SERVICE TO PROFESSION**

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Reviewer for WIREs Computational Statistics

**PROFESSIONAL MEMBERSHIPS**

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Institute of Mathematical Statistics

American Statistical Association

**SKILLS**

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*Languages*      English (fluent)

*Programming*    R and C/C++