Grant B. Weller

Contact Information	Savvysherpa, Inc. 6200 Shingle Creek Pkwy. Ste. 400 Minneapolis, MN 55430	*E-mail:* gweller57 "at" gmail "dot" com *Phone:* (320) 248-7380 *Web:* www.grantbweller.com *Last updated:* January 28, 2018

Education

Colorado State University, Fort Collins, CO

Ph.D., Statistics, May 2013
- Dissertation Title: *Joint Tail Modeling via Regular Variation with Applications in Climate and Environmental Studies*
- Adviser: Dan Cooley

M.S., Statistics, December 2010

Concordia College, Moorhead, MN

B.A., Mathematics and Economics, May 2008
- *Magna cum Laude*
- GPA: 3.85

Research Interests

Extreme value theory, multivariate extremes, heavy-tail phenomena; applications in climate, environmental modeling, astronomy, and finance; time series modeling; applications of statistical and machine learning methods in medicine, healthcare, and econometric forecasting; social network analysis.

Academic and Professional Experience

Savvysherpa, Inc., Minneapolis, MN

Senior Research Scientist	**February 2015 to current**
Research Scientist	**June 2014 to February 2015**

- Conduct primary and secondary research in Biostatistics, econometric forecasting, and social network analysis.
- Develop statistical and machine learning methods for predictive analytics in healthcare.
- Collaborate with social scientists and domain experts applying scientific methods to solve business problems.

Department of Statistics, Carnegie Mellon University, Pittsburgh, PA

Visiting Assistant Professor	**August 2013 to June 2014**

- Conducted methodological and applied statistical research.
- Instructor for graduate and undergraduate statistics courses.

Department of Statistics, Colorado State University, Fort Collins, CO

Postdoctoral Fellow	**June 2013 to July 2013**

National Center for Atmospheric Research, Boulder, CO

IMAGe Visitor	**May 2011 to July 2013**

- Examined extremal dependence in west coast precipitation between observational data and NARCCAP regional climate models
- Built an index connecting pineapple express extreme precipitation to large-scale atmospheric processes

Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC

Graduate Student Visitor　　　　　　　　　**August 2011 to December 2011**
- Participant in 2011-2012 program on Uncertainty Quantification
- Working group: Statistics of Extremes

Department of Statistics, Colorado State University, Fort Collins, CO

Graduate Research Assistant　　　　　　　　**January 2011 to May 2013**
- Conducted research in multivariate extremes under the direction of Dr. Dan Cooley
- Developed R examples for STAT 511/512 under the direction of Dr. Phillip Chapman (Spring 2011)

Graybill Statistical Laboratory, Colorado State University, Fort Collins, CO

Programming Consultant　　　　　　　　　**January 2009 to August 2009**
- Provided walk-in statistical consulting to the general campus community

Worcester Polytechnic Institute, Worcester, MA

Research Experience for Undergraduates　　　**June 2007 to July 2007**
- Collaborated with four other students on two projects sponsored by State Street Global Advisors, Boston, MA
- Produced a model to rank future performance of stocks
- Explored methods for bond portfolio optimization

Concordia College Academic Enhancement Center, Moorhead, MN

Mathematics Tutor　　　　　　　　　　　**January 2005 to May 2008**
- Walk-in tutor for a variety of undergraduate mathematics courses

OTHER PROFESSIONAL EXPERIENCE

U.S. Environmental Protection Agency

Ad hoc member, FIFRA Scientific Advisory Panel　　**December 2–4, 2014**
　　　　　　　　　　　　　　　　　　　November 28–29, 2017

TEACHING EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA

Visiting Assistant Professor　　　　　　　**August 2013 to June 2014**

- Primary Instructor for 36-762: Applications of Extreme Value Theory, Fall 2013
- Co-Primary Instructor for 36-303: Sampling, Survey, and Society, Spring 2014

Colorado State University, Fort Collins, CO

Graduate Teaching Assistant　　　　　**August 2008 to December 2010,**
　　　　　　　　　　　　　　　　　January 2012 to May 2013

- Primary Instructor for STAT 301: Introduction to Statistical Methods
  - Fall 2010
  - Responsible for 1 hour lecture and supervision of 95 undergraduate students
  - Developed original course material ($\sim 80\%$)

- Primary Instructor for STAT 204: Statistics for Business Students
  - Summer 2010

- Teaching Assistant for STAT 204: Statistics for Business Students
  - Fall 2008, Spring 2010
  - Guided weekly 1 hour recitation sections.

- Teaching Assistant for STAT 201: General Statistics
  - Fall 2009

- Grader for graduate-level courses
  - STAA 574: Methods in Multivariate Analysis (*Dr. Dan Cooley*), Spring 2013
  - STAA 576: Methods in Environmental Statistic (*Dr. Dan Cooley*), Spring 2013
  - STAT 675: Bayesian Statistics (*Dr. Jennifer Hoeting*), Fall 2012
  - STAT 523: Quantitative Spatial Analysis (*Dr. Dan Cooley*), Spring 2012

PUBLICATIONS

Weller, G.B., Lovely, J., Larson, D.W., Earnshaw, B.A., and Huebner, M. (2017). Leveraging electronic health records for predictive modeling of post-surgical complications. *Statistical Methods in Medical Research*, in press. *doi: 10.1177/0962280217696115*

Tang, M. and Weller, G.B. (2017). Bivariate tail risk analysis for high-frequency returns via extreme value theory. *Model Assisted Statistics and Applications*, **12**(1):1–14.

Weller, G.B. and Eddy, W.F. (2015). Multivariate order statistics: theory and application. *Annual Reviews of Statistics and its Application*, **2**:237–257.

Weller, G.B. and Cooley, D. (2014). A sum characterization of hidden regular variation with likelihood inference via expectation–maximization. *Biometrika*, **101**(1):17–36.

Weller G.B., Cooley, D., Sain, S., Bukovsky, M., and Mearns, L.O. (2013). Two case studies on NARCCAP precipitation extremes. *Journal of Geophysical Research - Atmospheres*, **118**(18):10,475–10,489.

Weller, G.B., Cooley, D., and Sain, S. (2012). An investigation of the pineapple express phenomenon via bivariate extreme value theory. *Environmetrics* **23**(5):420–439.

TECHNICAL REPORTS AND MANUSCRIPTS

Weller, G.B. (2015). Modeling and prediction of generic pharmaceutical utilization via Bayesian structural time series. *Savvysherpa technical report*.

Weller, G.B. (2013). Joint Tail Modeling via Regular Variation with Applications in Climate and Environmental Studies. *PhD Dissertation, Colorado State University, Fort Collins, CO.*

Weller, G.B. and Cooley, D. (2012). An alternative characterization of hidden regular variation in joint tail modeling. *CSU Department of Statistics Technical Report*.

INVITED TALKS

Modeling Multivariate Extreme Values via Regular Variation: an Application to High-Frequency Financial Returns
- *Department of Statistics Environmental Seminar, North Carolina State University, Raleigh, NC.* March 3, 2015.

Inference for Hidden Regular Variation in Multivariate Extremes.
- *Department of Statistics Seminar, Columbia University, New York, NY.* April 14, 2014.

Investigating NARCCAP Precipitation Extremes via Bivariate Extreme Value Theory.
- *American Geophysical Union Fall Meeting, San Francisco, CA.* December 12, 2013.

Tail Dependence and its Applications.

- *Applied Probability and Statistics Seminar, University of St. Thomas, St. Paul, MN.* December 6, 2013.

Bivariate Extreme Value Analyses of NARCCAP Precipitation Extremes.
- *Department of Meteorology Colloquium, Pennsylvania State University, State College, PA.* October 2, 2013.

A Sum Characterization of Hidden Regular Variation in Joint Tail Modeling with Likelihood Inference via the MCEM Algorithm.
- *Eighth International Conference on Extreme Value Analysis, Shanghai, China.* July 11, 2013.
- *Department of Statistics Seminar, Carnegie Mellon University, Pittsburgh, PA.* January 28, 2013.
- *Department of Statistics Colloquium, University of Missouri, Columbia, MO.* January 24, 2013.

Flooding to Financial Disaster: An Introduction to Extreme Value Theory.
- *Concordia College Mae Anderson Alumni Talks, Moorhead, MN.* January 20, 2012.

CONTRIBUTED TALKS

Quantifying Tail Risk in Health Insurance Pools using Extreme Value Theory.
- *Joint Statistical Meetings (topic-contributed), Chicago, IL.* August 1, 2016.

Leveraging Electronic Health Records for Predictive Modeling of Surgical Complications.
- *International Society for Clinical Biostatistics 2015 Meeting, Utrecht, Netherlands.* August 26, 2015.

Bayesian Forecasting of Generic Pharmaceutical Utilization via Dynamic Linear Models.
- *Joint Statistical Meetings, Seattle, WA.* August 13, 2015.

Inference for Hidden Regular Variation in Multivariate Extremes.
- *2014 SIAM Conference on Uncertainty Quantification, Savannah, GA.* March 31, 2014.
- *Department of Statistics Seminar, University of Wisconsin-Madison, Madison, WI.* September 23, 2013.

Estimation of Hidden Regular Variation Structures in Multivariate Extremes.
- *Space-time working group, University of Washington, Seattle, WA.* April 22, 2013.

A Sum Characterization of Hidden Regular Variation in Joint Tail Modeling with Likelihood Inference via the MCEM Algorithm.
- *Joint Mathematics Meetings, Baltimore, MD.* January 17, 2014.
- *IMAGe brown bag seminar, NCAR, Boulder, CO.* January 18, 2013.

An Alternative Representation of Hidden Regular Variation in Multivariate Extremes.
- *2012 WNAR - Graybill Conference, Fort Collins, CO.* June 18, 2012.
- *SAMSI UQ: Transition Workshop, Research Triangle Park, NC.* May 23, 2012.
- *Student Organized Activities and Research Seminars (SOARS), CSU Department of Statistics, Fort Collins, CO.* May 18, 2012.

An Investigation of the Pineapple Express Phenomenon via Bivariate Extreme Value Theory.
- *Joint Statistical Meetings (topic-contributed), San Diego, CA.* July 31, 2012.
- *Student Organized Activities and Research Seminars (SOARS), CSU Department of Statistics, Fort Collins, CO.* July 23, 2012.
- *Colorado/Wyoming ASA Chapter Spring Meeting, Boulder, CO.* April 20, 2012.
- *2012 NARCCAP Fourth Users' Meeting, Boulder, CO.* April 11, 2012.
- *SIAM 2012 Conference on Uncertainty Quantification, Raleigh, NC.* April 5, 2012.

- *Cooperative Institute for Research in the Atmosphere (CIRA) seminar, Fort Collins, CO.* February 29, 2012.
- *Student Organized Activities and Research Seminars (SOARS), CSU Department of Statistics, Fort Collins, CO.* February 27, 2012.

Hidden Regular Variation, Second order Regular Variation, and Asymptotic Independence.
- *SAMSI UQ: Statistics of Extremes working group meeting.* February 6, 2012.

Modeling the Pineapple Express Phenomenon via Multivariate Extreme Value Theory.
- *IMAGe brown bag seminar, NCAR, Boulder, CO,* May 31, 2011.
- *Student Organized Activities and Research Seminars (SOARS), CSU Department of Statistics, Fort Collins, CO.* June 1, 2011.

POSTER PRESENTATIONS

Bivariate Extreme Value Analyses of NARCCAP Precipitation Extremes.
- *Climate Informatics 2013 Workshop, Boulder, CO.* September 27, 2013.

A New Representation of Hidden Regular Variation in Multivariate Extremes.
- *ASA Section on Statistics and the Environment Workshop, Raleigh, NC.* October 5, 2012.

An Investigation of the Pineapple Express Phenomenon via Bivariate Extreme Value Theory.
- *Ten Lectures in Statistical Climatology, Seattle, WA.* August 6, 2012.
- *SAMSI/CICS UQ: Observations Workshop, Asheville, NC.* January 17, 2012.
- *American Geophysical Union Fall Meeting, San Francisco, CA.* December 6, 2011.
- *World Climate Research Programme Open Science Conference, Denver, CO.* October 27, 2011. Recipient, *Outstanding Poster Presentation* award.

Modeling the Pineapple Express Phenomenon via Multivariate Extreme Value Theory.
- *SAMSI program on Uncertainty Quantification: Methodology Opening Workshop, Research Triangle Park, NC.* September 8, 2011.
- *SAMSI program on Uncertainty Quantification: Climate Modeling Opening Workshop, Pleasanton, CA.* August 30, 2011.

OTHER PRESENTATIONS

Regression Models: Applications, Transformations, and Interpretations.
- *Savvysherpa internal presentation, Minneapolis, MN.* October 28, 2014.

Joint Tail Modeling via Regular Variation with Applications in Climate and Environmental Studies.
- *CSU Department of Statistics PhD Final Examination, Fort Collins, CO.* March 15, 2013.
- *CSU Department of Statistics PhD Preliminary Examination, Fort Collins, CO.* June 13, 2012.

HONORS AND AWARDS

- J.E. Moyal Award for Excellence in Applied Probability (CSU Department of Statistics), May 2013.

- Best student oral presentation award winner at 2012 WNAR - Graybill Conference, June 2012.

- Elmer E. Remmenga Scholarship in Applied Statistics (CSU Department of Statistics), April 2012.

- "Outstanding Poster Presentation" selection at WCRP Open Science Conference for "An Investigation of the Pineapple Express Phenomenon via Bivariate Extreme Value Theory", October 2011.

- James S. Williams Memorial Scholarship (CSU Department of Statistics), 2008-2009.

- Dean's List, Concordia College, 2004-2008.

- National Science and Mathematics Access to Retain Talent (SMART) grant, Concordia College, 2007-2008.

- Team captain, Concordia College football, 2007.

- ESPN the Magazine/CoSIDA Academic All-America football team, 2007.

SERVICE

- Referee for:
  - Conference on Learning Theory (COLT 2015)
  - Environmental and Ecological Statistics
  - Environmetrics (4 manuscripts)
  - Extremes
  - Journal of Climate
  - Model Assisted Statistics and Applications
  - Statistics and its Interface
  - Statistics in Medicine

- Carnegie Mellon University Department of Statistics seminar committee, 2013–2014

- Twin Cities Chapter of the American Statistical Association

Past President	**2017**
President	**2016**
Secretary and Webmaster	**2015**

  - Co-organizer, 2016 Fall Research Meeting at Medtronic in Mounds View, MN.
  - Co-organizer, 2016 Spring Banquet at Surly Brewing in Minneapolis, MN.
  - Co-organizer, 2015 Fall Research Meeting at Mayo Clinic in Rochester, MN.

PROFESSIONAL
AFFILIATIONS

- Member, AcademyHealth, 2016-present.

- Member, American Statistical Association (ASA), 2008-present.
  - Colorado–Wyoming chapter, 2010–2013
  - Pittsburgh chapter, 2013–2014
  - Twin Cities chapter, 2014–present

- Member, American Geophysical Union (AGU), 2011–2014.

- Member, Society for Industrial and Applied Mathematics (SIAM), 2011–2014.

REFERENCES

- Dan Cooley, *Associate Professor.* Colorado State University Department of Statistics.
  - Phone: (970) 491-5721
  - Email: cooleyd@stat.colostate.edu

- Bill Eddy, *John C. Warner Professor of Statistics (emeritus).* Carnegie Mellon University Department of Statistics.
  - Phone: (412) 468-2725
  - Email: bill@cmu.edu

- Jay Breidt, *Professor and Associate Chair.* Colorado State University Department of Statistics.
  - Phone: (970) 491-6786
  - Email: jbreidt@stat.colostate.edu

- Stephan Sain, *Senior Quantitative Researcher.* The Climate Corporation.
  - Email: steve.sain@climate.com