

Barret Schloerke 2015

(Permanent)

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Education

Purdue University West Lafayette, Indiana

PhD of Statistics

Advisors: Dr. William Cleveland &
Dr. Ryan Hafen

Transferred: Spring 2013

Purdue University West Lafayette, Indiana

Masters of Mathematical Statistics

GPA: 3.69

Transferred: Spring 2013
Graduated Fall 2014

Rice University Houston, Texas

Student for PhD of Statistics

Advisor: Dr. Hadley Wickham

Fall 2012

Iowa State University Ames, Iowa

Bach. of Sci. in Computer Engineering

GPA: 3.77

Graduated: December 2010

Honors and Awards

Award	Description	Date
Visiting Scientific Researcher	Received full funding for Workshop on Visualization for Big Data: Strategies and Principles	Spring 2015
National Science Foundation Graduate Research Fellowship	3 year fellowship grant recipient	Spring 2012
Best Dynamic / Interactive Visualization	Data Insight (SF)	June 2011
National Science Foundation Graduate Research Fellowship	Honorable mention	Spring 2011
Magna Cum Laude	Graduate with GPA greater than 3.70	Fall 2010
Eta Kappa Nu Honor Society	Being in top 25% of class EE/CprE Honor Society	Inducted in Fall 2008
Dean's List	Achieving a 3.5 or above for a semester	Fall 2006 - Fall 2010
Engineering Merit Scholarship	College of Engineering Achieving at least a 3.50 GPA	Fall 2006 - Spring 2010
President's Award for Competitive Excellence	For High School Excellence 2nd in class rank	Fall 2006 - Spring 2010

Publications

Journal Articles

- Emerson, J., W. Green, B. Schloerke, J. Crowley, D. Cook, H. Hofmann, and H. Wickham “[The Generalized Pairs Plot](#).” *Journal of Computational and Graphical Statistics* 22.1 (2013). Print.
- Hofmann H., D. Cook, C. Kielion, B. Schloerke, J. Hobbs, A. Loy, L. Mosley, D. Rockoff, Y. Huang, D. Wrolstad, and T. Yin “[Delayed, Canceled, on Time, Boarding Flying in the USA](#).” *Journal of Computational and Graphical Statistics* 20.2 (2012). Print.
- Mosley, L., D. Cook, H. Hofmann, C. Kielion, and B. Schloerke. “[Monitoring the 2008 Election Visually](#).” *Chance* 23.3 (2010). Print.
- Schloerke, B., S. Bradley, H. Wickham, D. Cook, H. Hofmann. “Escape from Boxland: Generating a Library of High-Dimensional Geometric Shapes.” *R Journal* In progress. Print.

Presentations

- Schloerke, B. “ggplot2: displaying spatial and temporal data” Spatial Statistics Seminar. Recitation, West Lafayette, IN. Oct. 2014. Speech.
- Schloerke, B. “Reducing Working Environment Inefficiencies” Graduate Statistics Seminar. Haas, West Lafayette, IN. Feb. 2014. Speech.
- Schloerke, B. “help: Help for R.” Working Group Meeting. Snedecor Hall, Ames, IA. Sept. 2010. Speech.
- Schloerke, B. “GGally: A Plot Matrix for All Variable Types.” Joint Statistical Meeting 2010. Vancouver Convention Center, Vancouver, BC Canada. Aug. 2010. Speech.
- Quart, G., B. Schloerke, and D. Gannon. “Visualizing Large Data Sets: Housing Crisis.” VIGRE. Rice University, Houston, TX. June 2009. Speech.

Talks

- Purdue working group (2014): “git”
- Bay Area (2011): “Sinartra: Simple Web Framework”, “5 Tips for Running Node in Production”, “Express: Node Router”
- ISU working group (2008-2010): “Roxygen: Documentation for R”, “help: Help for R”, and “Electoral Towers”

Research

Purdue University

- **trelliscopejs**: - Spring 2015
 - Ported original trelliscope R package to be separated from shiny
 - Full visual implementation in javascript dramatically increases interaction time
 - Utilized Ember javascript platform to produce a single webpage application with multiple URLs
- **Bitcoin**: DARPA XDATA - Summer 2013
 - Brought previous transaction exporter up to protocol
 - Formatted escrow transactions to be matched easier
 - Made “None” keys uniquely identifiable, rather than being treated the same

- Matched some “None” keys to valid output keys
- Updated User exporter to include all information available

Rice University VIGRE Program

Summer 2009

- Performed exploratory analysis on the housing crisis
- Found, cleaned, and explored multiple data sets
- Created all outputs reproducible from scratch
- Supervised by Dr. Hadley Wickham

Novartis Pharmaceutical

Summer 2008

- Created a time management tool using gantt charts to help management quickly display availability.
- Created a web-based tutorial consisting of examples of the most common graphics produced when using different layouts. This allowed users to know exactly how everything was being displayed. (white-box)
- Worked coherently with the top 15 statisticians within Novartis.
- Supervised by Dr. Anthony Rossini and Mentored by Dr. Francois Mercier.

ISU Statistics Research

Summer 2007 to Fall 2010

- Supervised by Dr. Dianne Cook and Dr. Heike Hofmann
- **2009 American Statistical Association Data Expo:** Delayed, Cancelled, On-Time, Boarding ... Flying in the USA - Spring 2009
 - Displayed airport delays caused by airport layout using multiple applications.
 - Using Google’s KML language, R and wget, we produced Google Earth images with the runways highlighted.
 - Iowa State University working group finished 2nd in the [world competition](#).
- **Election Data:** Explore new ways to show the Electoral College for the 2008 Presidential Election - Fall 2008
 - Created a custom cartogram of the United States with area proportional to the electoral vote of each state.
 - Produced the ‘Electoral Vote Towers’ (inspired by New York Times 2000 Presidential Race) that quickly portrayed the electoral vote status.
- **DNA:** Viewing DNA sequence data - Fall 2008
 - Extension of the polytope ranking.
 - Created combinations of DNA sequences with a length of four which were displayed in a grand tour.
- **Polytope Ranking:** Visualizing ranked data - Spring 2008

- Created a model that would connect a ranked data set.
- Added jittered data points to each combination with the distance relative to the amount of points.
- **FaceOff:** ‘Lines and Dots’ in the fourth dimension - 2007
 - Game created to calibrate users into viewing and thinking in the fourth dimension.
 - Game is a combination of “Connect 4”, “Tic Tac Toe”, and “Dots and Lines.”
- **IEEE Infovis Competition:** 2007 Infovis visualization competition
 - Internet Movie Data Base (IMDB) competition.
 - Worked on the genres of the database using the “Many Eyes” web application.
 - Helped edit and produce the [movie](#) that the working group submitted.

Work Experience

Metamarkets

Software Engineer - Spring 2011 - Summer 2012

Client-Side	Server-Side
<ul style="list-style-type: none"> • Developed url framework • Created the javascript foundation from scratch • Utilized DVL and D3 to make visualizations and objects data dependant • Modularized the code to make it useable in multiple locations • Sped up deployment of code and utilized browser caching • Minimized calls to backend server to avoid excessive load 	<ul style="list-style-type: none"> • Learned and implemented Node.js • Developed / forked multiple public packages • Developed user management system • Developed / utilized user configuration file • Allowed user configuration to work with self serve process • Maintained client security • Implemented custom server cluster to prevent request failure • Merged multiple data sources per request • Wrote own security check and error notification system

Open Source

Node.js / Javascript

- [yalog](#) Yet Another Logger - 2012
 - Request logger to allow for personalized logging messages within different log levels
 - Barret Schloerke
- [DVL](#) Data Visualization Legos - 2011-2012
 - Functionally reactive javascript library to bind data to functions and visualizations
 - Vadim Ogievetsky, Barret Schloerke

R Packages

- **cranvas** New Plotting Canvas for R - 2010
 - New plotting canvas for R. Produces more than a million points in less than a second.
 - Dr. Wickham, Dr. Lawrence, Dr. Hoffman, Dr. Cook, Yihui Xie, Tengfei Yin, Marie Vendettuoli, Barret Schloerke
 - Iowa State University
- **helpR** Help for R - Summer 2010
 - Better Friendly HTML documentation with links to other packages, function aliases, and function sources. Finding information may be done with the comprehensive search bar.
 - Barret Schloerke, Dr. Wickham
 - Rice University and Revolution Analytics
- **GGally** ggplot2's Best Friend - Spring 2010
 - Re-designed the scatterplot matrix to handle other variable types.
 - Barret Schloerke, Dr. Wickham, Dr. Cook, Dr. Hofmann
 - Iowa State University
- **DescribeDisplay** Reproduce GGobi images in R - Fall 2009
 - Produce publication quality graphics from GGobi's describe display plugin.
 - Barret Schloerke
 - Iowa State University
- **tourr** Geodesic interpolation and basis generation functions - Fall 2009
 - Implements geodesic interpolation and basis generation functions that allow you to create new tour methods in R.
 - Dr. Wickham, Dr. Cook, Barret Schloerke
 - Iowa State University and Rice University
- **GeoZoo** A library of high dimension geometric objects - 2007
 - Functions to produce cubes, spheres, simplices, polyhedra, polytops, tori, and mobius-like objects. Contains a new addition to the high dimension polytopes, a Hyper Ring Torus
 - Barret Schloerke, Dr. Cook
 - Iowa State University

Interface

- **R-Touch:** R on the iPod Touch / iPhone - 2009
 - Application allows the user to perform on-the-fly coding, produce images, download data from the Internet, restore old code files, and save current executed code. The coding session may then be viewed on a computer using the session ID.
 - Barret Schloerke, Chris Kielion
 - Iowa State University

Websites

- **Checkin System** Implemented a database management system for Iowa State's [Greek Olympics](#) (2010 - 2012) and [Iowa State's Homecoming Blood Drive](#) (2012) to keep tabs on participants.
- **HelpR** [HelpR](#) R package is written using [sinartra](#) which allows for embedding R in HTML when the page is generated. 2010
- **Senior Design** [Senior Design](#) project description with links to meeting minutes and team documents. 2010
- **Election Maps** [Election Maps](#) includes two sections: Cartogram of the USA and Electoral Vote Towers. 2009
- **Novartis Toolbox** [Toolbox](#) designed for generating standard statistical graphics in R. The mission of the website is to give the user the tools to learn basic and advanced Lattice skills through examples. 2008
- **GeoZoo** [GeoZoo](#) was created to help the viewer's eyes calibrate to high dimensions. GeoZoo contains many data sets of high dimensional geometric shapes. 2007
- **FaceOff** [FaceOff](#)'s video and PDF tutorial. 2007

Undergraduate Service

Office / Leadership Positions

- **Iowa State University Hip Hop Club (Dub H):** Technology Chair and Executive Committee - 2007 to 2010
 - Made club self sustaining
 - Plan, execute, and review all events
 - Produce videos and DVDs for club
- **GRIP Mentoring:** Leader/Friend - Fall 2007 to Spring 2010
 - Met with and provided guidance for a middle school student in Gilbert, IA
- **Greek Week Check-in:** Electronic Check-in for Events Spring 2010
 - Managed a system with more than 2300 records for 10+ events
 - Linked to participants ISU card
- **Eta Kappa Nu:**
 - Organized event to inform middle school students what a Computer Engineer does at Iowa State University - Service Chair - Spring 2010
 - Oversaw the meetings and made certain that the events were run properly - Vice President - Spring 2009
- **FarmHouse Fraternity:** Scholarship Chair - Fall 2007 to Spring 2009.
 - Implemented five new programs to strengthen GPA
 - Moved committee chair into an executive position
- **E-Ball Subcommittee:** Committee Member - Spring/Fall 2007
 - Planned dance event for 800 people
 - Specialized in food selection

Classes

Fall 2006					Spring 2007				
Chem 167	Engnrs General Chem 167	4.0	A-		Chem 167L	Enginr Gen Chem Lab	1.0	A-	
Engr 101	Engineering Orietrn	R	S		Engr 170	Engr Graphics and Desgn	3.0	B+	
Engr 131	Learning Comm Semnr	R	S		Hon 290H	Special Prob Honors	1.0	S	Honors
Engr 160	Engr Prob w/Cpr Lab	3.0	A		Hon 322F	Data: Graphical, Visual	1.0	S	Honors
Hon 121	Freshman Honors Sem	1.0	S	Honors	M E 102	Mech Engr Orientatn	R	S	
Lib 160	Lib Instruction	0.5	S	Honors	Math 265	Calculus III	4.0	A	
Math 165	AdvPl-Calculus I	4.0	T		Music 151B	Statesmen Mens Choir	1.0	A	
Math 166	Calculus II	4.0	A		Phys 221H	Honors- Classic Phys I	5.0	A	Honors
Music 151B	Statesmen Mens Choir	1.0	A						
Summer 2007									
E M 274	Statics of Engineer	3.0	A						
Fall 2007					Spring 2008				
E M 324	Mechan of Materials	3.0	A		E M 345	Dynamics	3.0	A-	
M E 202	Mech Engr Pro Plan	R	S		Econ 102H	Honors Prin MacroEc	3.0	B+	Honors
Math 267	Diff Eq and Transfms	4.0	A-		M E 231	Engr Thermodynamics I	3.0	P	
Phys 222H	Honors- Classical Phys II	5.0	A	Honors	M E 270	Intr Mch Eng Design	3.0	P	
Stat 305	Engineering Stat	3.0	A-		MAT E 272	Prin Matrls Sci&Eng	2.0	A	
Fall 2008					Spring 2009				
Com S 227	Intro to Objt Orien Prg	4.0	A		Com S 228	Intro to Data Structur	3.0	A-	
Cpr E 281	Digital Logic	4.0	A-		Cpr E 166	Pro Prog Orientatn	R	S	
EE 201	Electrical Circuits	4.0	A		Cpr E 288	Embedde Sys I:Intro	4.0	B+	
Psych 280	Social Psychology	3.0	P		Cpr E 310	Theoret Found Cpr E	3.0	A	
					W S 201	Intro Women's Studi	3.0	A	
Fall 2009					Spring 2010				
Com S 309	Sftwr Dev Practces	3.0	A-		AESHM 342	Aesthetc of Everydy	3.0	A	
Cpr E 381	Cptr Org & Asmb Prog	4	A		Com S 311	Dsn & Analysis Algrth	3.0	B+	
Engl 314	Technical Communctn	3.0	B		Cpr E 308	Operat Sys: Prn & Pra	4	A-	
I E 409	Intdiscp Sys Effctv	3.0	A-		Cpr E 491	Senior Design Proj & Pro	3.0	B+	
Relig 323	Science & Religion	3.0	B-		Cpr E 494	Portfolio Assessmnt & Pro	R	S	
S E 319	Sftwr Cnstr & User In	3.0	A						
Summer 2010									
E E 230	ELECTRON CIRCTS & SYS	4.0	A						
Fall 2010									
Cpr E 388X	Embed Sy I:Miccntrl	4.0	A						
Cpr E 492	Sr Design Project II	2.0	A-						
Cpr E 530	Adv Protcl & Nt Secur	3.0	A						
HD FS 276	Human Sexuality	3.0	A						
HRI 383	Intro Wine,Beer,Spi	2.0	P						
Fall 2012					Spring 2013				
Stat 431	Overview of Math Stat	3.0	B		Stat 519	Intro To Probability	3.0	B+	
Stat 615	Intro to Reg & Comput	3.0	A-		Stat 526	Adv Stat Methodology	3.0	B+	
Stat 621	Applied TS & Forecasting	3.0	A-		Stat 528	Intro Math Stat	3.0	A-	
Stat 601	Statistics Colloquium	1.0	A		Stat 692	Statistics Seminar	1.0	P	
Stat 405	Intro to Data Analysis			TA					
Fall 2013					Spring 2014				
Stat 532	Elem Stochastic Proc	3.0	B-		Stat 546	Computational Statistics	3.0	B+	
Stat 545	Intro Comp Statistics	3.0	A		Stat 553	Linear Models	3.0	A-	
Stat 598	New Student Seminar	1.0	A		Stat 598	Functional Data Analysis	3.0	A+	
Stat 695	Recent Dev In Bays Anlys	3.0	A		Stat 692	Statistics Seminar	1.0	P	
Fall 2014					Spring 2015				
Stat 514	Design Of Experiment	3.0	A-		Stat 598	Bioinformatic/Stat Gen	1.0		
Stat 598	Spatial Statistics	3.0	A+		Stat 695	Visualizing Lg Complex Data	3.0		
Stat 695	R/RHIPE/Hadoop	3.0	A+		Stat 699	Research PhD Thesis	14.0		
Stat 699	Research PhD Thesis	2.0	S						

Personal Contacts

- Dr. William Cleveland. wsc@purdue.edu
- Dr. Ryan Hafen. r.hafen@gmail.com
- Dr. Hadley Wickham. h.wickham@gmail.com
- Dr. Dianne Cook. dicook@iastate.edu
- Dr. Michael Driscoll. mike@metamarkets.com