Susan Vanderplas

Curriculum Vitae

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Education

2015 **PhD**, *Statistics*, Iowa State University.
Dissertation: The Perception of Statistical Graphics

2011 **MS**, *Statistics*, Iowa State University.

2009 **BS**, *Psychology, Applied Mathematical Sciences*, Texas A&M University.

Professional Experience

2018– **Research Assistant Professor**, *Center for Statistics and Applications in Forensic Evidence*, Iowa State University.

2015–2018 **Statistical Analyst**, *Nebraska Public Power District*.

2015 **Postdoc**, *Iowa State University Office of the Vice President for Research*.

2014– **Consultant**.
Develop web applications, interactive data displays, and statistical analyses for clients including the Iowa Soybean Association, ISU Agronomy Labs, and the USDA.

Scholarship

Publications

Percentages estimated from git contributions using git fame where possible

2018 **Susan Vanderplas**, Ryan Goluch, and Heike Hofmann. Framed! Reproducing 150 year old plots. *Journal of Computational and Graphical Statistics*, 2018
Programming and analysis (60%), writing (50%).

C Sievert, J Cai, **S Vanderplas**, F Khan, K Ferris, and T Hocking. Extending ggplot2 for linked and dynamic web graphics. *Journal of Computational and Graphical Statistics*, 2018

2017 **Susan Vanderplas** and Heike Hofmann. Clusters beat Trend!? Testing feature hierarchy in statistical graphics. *Journal of Computational and Graphical Statistics*, 26(2):231–242, 2017
Programming and analysis (90%), writing (50%).

Lindsay Rutter, **Susan Vanderplas**, Dianne Cook, and Michelle Graham. ggeaneal-ogy: An R Package for Visualizing Genealogical Data. *Journal of Statistical Software*, 2017

Heike Hofmann and **Susan Vanderplas**. All of this has happened before. All of this will happen again: Data Science. *Journal of Computational and Graphical Statistics*, 26(4):775–778, 2017
Writing (75%).

2016 **Susan Vanderplas** and Heike Hofmann. Spatial reasoning and data displays. *IEEE Transactions on Visualization and Computer Graphics*, 2016
Programming and analysis (90%), writing (75%).

2015 **Susan Vanderplas** and Heike Hofmann. Signs of the sine illusion - why we need to care. *Journal of Computational and Graphical Statistics*, 24(4):1170–1190, 2015
Programming and analysis (50%), writing (60%).

In Progress **Visual Inference for Bayesians** Examine two-target statistical lineups and the connection to Bayes Factors.

Truthiness and Statistical Charts Evaluate whether the truthiness effect (increased belief in a statement based on the presence of an accompanying picture) holds for statistical charts and maps.

Longitudinal Shoe Database Design a database for sharing longitudinal shoe wear data, including powder prints, 2D scans, 3D scans, pictures, and crime-scene style casts and prints.

Bullet Signature Resampling Method for resampling bullet signatures used to calculate match and non-match score distributions.

Bullet Test Set Validation Validate an algorithm for bullet matching on several test sets used to test forensic examiner proficiency.

Continuous Integration and Unit Testing in Forensics Software Discussion of best practices for development of forensics software (continuous integration, unit testing, version control systems, and open-source licensing).

Footwear Class Characteristic Recognition using Neural Networks Use convolutional neural networks to automate identification of class characteristics in images of footwear outsoles.

Invited Talks

2019 **Statistical Lineups for Bayesians**, *JSM*.

2018 **Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics**, *SDSS*.

2015 **Animint: Interactive Web-Based Animations Using Ggplot2's Grammar of Graphics**, *JSM*.

2014 **The curse of three dimensions: Why your brain is lying to you**, *JSM*.

Contributed Talks

2018 **Framed! Reproducing 150 year old charts**, *JSM*.

2017 **A Bayesian Approach to Visual Inference**, *JSM*.

2016 **Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics**, *JSM* .

2015 **Visual Aptitude and Statistical Graphics**, *InfoVis*.

2015 **Animint: Interactive, Web-Ready Graphics with R**, *Great Plains R User Group*.

2014 **Do You See What I See? Using Shiny for User Testing**, *JSM*.

2013 **Signs of the Sine Illusion – why we need to care**, *JSM*.

Software

2018 `bulletsamplr`, *Resampling of bullet signatures*.

2018 `ImageAlignR`, *Image registration algorithms for forensics*.

2018 `bulletxtrctr`, *automated matching of 3d bullet scans*.

2018 `x3ptools`, *Reading, manipulating, and visualizing x3p files*.

2013–2015 `animint`, *animated, interactive web graphics for R using d3.js*.

Awards and Honors

2019 **NIJ R&D in Forensic Science**, *Statistical Infrastructure for the Use of Error Rate Studies in the Interpretation of Forensic Evidence*, Collaborator.

2014 **ASA Section on Statistical Graphics**, *Student Paper Award*.

Teaching

2017–2018 **Business Intelligence Embedded Agent Program**, *Nebraska Public Power District*.

2017 **R Workshop**, *Nebraska Public Power District*.

2014 **R Workshops**, *Iowa State*.

2013 **R Workshops**, *Iowa State*.

2013 **Statistical Methods for Research**, *Iowa State*, Teaching Assistant.

2013 **Introduction to Business Statistics II**, *Iowa State*, Teaching Assistant.

2012 **Introduction to Business Statistics II**, *Iowa State*, Teaching Assistant.

2011 **Statistical Methods for Research**, *Iowa State*, Teaching Assistant.

2011 **Empirical Methods for Comp. Sci.**, *Iowa State*, Teaching Assistant.

Mentoring and Advising

2018– **Miranda Tilton**, *Statistics*, MS Project.
Footwear Class Characteristics and Computer Vision

2018 **Talen Fisher**, *Computer Engineering*, Undergraduate Research.
Tools for working with x3p files, database design for storing bullet scans and intermediate analysis products.

2018 **Ben Wonderlin and Jenny Kim**, *Young Engineers and Scientists*, Summer 2018.
Footwear Class Characteristics and Computer Vision

Service

2017 2019 **Graphics Section Representative to the Council of Sections**, *ASA*.