

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.
- 2018 **Statistical Consultant**, *Nebraska Public Power District*.
Provided individual mentoring and project leadership to continue the Business Intelligence Embedded Agent program and provide support for R-related projects.
- 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







Contribution percentages estimated from git contributions using `git fame` where possible. Not all projects have github repositories for which this is meaningful.

Journal Publications

- 9. 2019 VanderPlas, S., Goluch, R. & Hofmann, H. Framed! Reproducing and Revisiting 150 year old charts. *Journal of Computational and Graphical Statistics*.
Contribution: Programming and analysis (60%), writing (50%).
- 8. 2018 Sievert, C., **VanderPlas, S.**, Cai, J., Ferris, K., Khan, F. U. F. & Hocking, T. D. Extending ggplot2 for linked and animated web graphics. *Journal of Computational and Graphical Statistics* **0**, 1–10. <https://doi.org/10.1080/10618600.2018.1513367>.
- 7. 2017 **Vanderplas, S.** & Hofmann, H. Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics. *Journal of Computational and Graphical Statistics* **26**, 231–


242. <http://dx.doi.org/10.1080/10618600.2016.1209116>.


Contribution: Programming and analysis (90%), writing (50%).


6.  **2017** *Accepted March 2017. Awaiting publication.*
Rutter, L., **Vanderplas, S.**, Cook, D. & Graham, M. ggenealogy: An R Package for Visualizing Genealogical Data. *Journal of Statistical Software*. <https://github.com/lrutter/ggenealogyPaper>.
5.  **2017** *Submitted as an invited response to Donoho's "50 years of Data Science".*
Hofmann, H. & **Vanderplas, S.** All of This Has Happened Before. All of This Will Happen Again: Data Science. *Journal of Computational and Graphical Statistics* **26**, 775–778.
Contribution: Writing (75%).
4.  **2016** **Vanderplas, S.** & Hofmann, H. Spatial Reasoning and Data Displays. *IEEE Transactions on Visualization and Computer Graphics*.
Contribution: Programming and analysis (90%), writing (75%).
3.  **2015** **Vanderplas, S.** & Hofmann, H. Signs of the Sine Illusion - why we need to care. *Journal of Computational and Graphical Statistics* **24**, 1170–1190. eprint: <http://dx.doi.org/10.1080/10618600.2014.951547>. <http://dx.doi.org/10.1080/10618600.2014.951547>.
Contribution: Programming and analysis (50%), writing (60%).
2.  **2010** Towfic, F., **VanderPlas, S.**, Oliver, C. A., Couture, O., Tuggle, C. K., Greenlee, M. H. W. & Honavar, V. Detection of gene orthology from gene co-expression and protein interaction networks. *BMC bioinformatics* **11**, S7.
1.  **2009** Hull, R., Bortfeld, H. & **Koons, S.** Near-infrared spectroscopy and cortical responses to speech production. *The open neuroimaging journal* **3**, 26.

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

Grants

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- 2018**
- NIJ R&D in Forensic Science, Statistical Infrastructure for the Use of Error Rate Studies in the Interpretation of Forensic Evidence**
- , Collaborator, Funded for FY 2019, \$197,699 total, \$57,596 ISU sub-award.

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- 2018**
- NIJ R&D in Forensic Science, Passive Acquisition of Footwear Class Characteristics in Local Populations**
- , PI, Not funded, \$383,104.

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- 2018**
- NIJ R&D in Forensic Science, Evaluating Photogrammetry for 3D Footwear Impression Recovery**
- , PI, Not funded, \$281,755.

Invited Talks

2019

Statistical Lineups for Bayesians, *JSM*, Section on Statistical Graphics, Denver, CO.

2018

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

2015

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

2014

The curse of three dimensions: Why your brain is lying to you, *JSM*, Section on Statistical Graphics Student Paper Session, Boston, MA.

Contributed Talks

2018

Framed! Reproducing 150 year old charts, *JSM*, Vancouver, BC.

2017

A Bayesian Approach to Visual Inference, *JSM*, Baltimore, MD.

2016

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

2015

Visual Aptitude and Statistical Graphics, *InfoVis*, Chicago, IL.

2015

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

2014

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

2013

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

Software

2018

bulletssamplr, *Resampling of bullet signatures*.

2018

ImageAlignR, *Image registration algorithms for forensics*.

2018

bulletxttrctr, *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*.

Teaching

2019

Stat 585 - Data Technologies for Statistical Analysis, *Iowa State University*.
Frequent guest lecturer, assisted with curriculum development

2017
2018

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

Design and implement a program to mentor employees, providing instruction in data science and opportunities to apply new skills within the company. Lead one-on-one and group mentoring sessions to create a sense of community and reinforce skills learned through online courses. Class size: 16

2017

R Workshop, *Nebraska Public Power District*.

3-day internal course on using R for data analysis.

2013
2014

R Workshops, *Iowa State*.

Introduction to R, ggplot2, data management and cleaning, package development, literate programming, and Shiny.

2013

Statistical Methods for Research, *Iowa State*, TA.

Stat 401

2013

Introduction to Business Statistics II, *Iowa State*, TA.

Stat 326

2012

Introduction to Business Statistics II, *Iowa State*, TA.

Stat 326

2011

Statistical Methods for Research, *Iowa State*, TA.

Stat 401

2011

Empirical Methods for Computer Science, *Iowa State*, TA.

Stat 430

Mentoring and Advising

2018

Miranda Tilton, *Statistics*, MS Creative Component.

Footwear Class Characteristics and Computer Vision. Expected graduation: Spring 2019

2019

Jason Seo, *Computer Science and Statistics*, Undergraduate Research.

R package for visualization of neural networks using the python library keras-vis.

2019

Jenny Ha, *Computer Science*, Undergraduate Research.

Database design for storing bullet scans and intermediate analysis products.

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.