

Susan Vanderplas

Curriculum Vitae

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🌐 [svanderplas](https://svanderplas.github.io)

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 Rutter, L., VanderPlas, S., Cook, D. & Graham, M. ggenealogy: An R Package for Visualizing Genealogical Data. *Journal of Statistical Software* **89**, 1–31. ISSN: 1548-7660. <https://www.jstatsoft.org/v089/i13>.
- 8. 2019 VanderPlas, S., Goluch, R. & Hofmann, H. Framed! Reproducing and Revisiting 150 year old charts. *Journal of Computational and Graphical Statistics*. <https://doi.org/10.1080/10618600.2018.1562937>.
Contribution: Programming and analysis (60%), writing (50%).

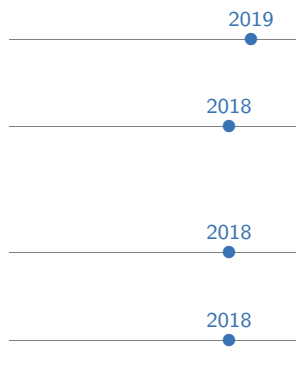
7. 2018

 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>.
6. 2017

Vanderplas, S. & Hofmann, H. Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics. *Journal of Computational and Graphical Statistics* **26**, 231–242. <https://doi.org/10.1080/10618600.2016.1209116>.
Contribution: Programming and analysis (90%), writing (50%).
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. <https://doi.org/10.1080/10618600.2017.1385474>.
Contribution: Writing (75%).
4. 2016

Vanderplas, S. & Hofmann, H. Spatial Reasoning and Data Displays. *IEEE Transactions on Visualization and Computer Graphics*. <https://doi.org/10.1109/TVCG.2015.2469125>.
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. <https://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. <https://doi.org/10.1186%2F1471-2105-11-S3-S7>.
1. 2009

 Hull, R., Bortfeld, H. & **Koons, S.** Near-infrared spectroscopy and cortical responses to speech production. *The open neuroimaging journal* **3**, 26. <https://doi.org/10.2174%2F1874440000903010026>.

Other Publications

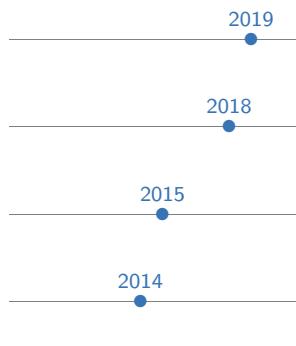
2. 2019

 Carriquiry, A., Hofmann, H., Tai, X. H. & **VanderPlas, S.** Machine learning in forensic applications. *Significance* **16**, 29–35. <https://doi.org/10.1111/j.1740-9713.2019.01252.x>.
1. 2013

 Budrus, S., Vanderplas, S. & Cook, D. In tennis, do smashes win matches? *Significance* **10**, 35–38. <https://doi.org/10.1111/j.1740-9713.2013.00665.x>.

- 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.

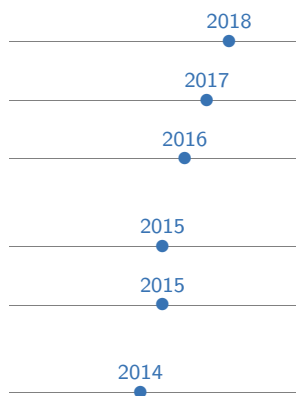
Grants

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- 2019 **NIJ R&D in Forensic Science, Automatic Acquisition and Identification of Footwear Class Characteristics**, PI, Under review (Submitted April 2019) \$386,984.
- 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.
- 2018 **NIJ R&D in Forensic Science, Passive Acquisition of Footwear Class Characteristics in Local Populations**, PI, Not funded, \$383,104.
- 2018 **NIJ R&D in Forensic Science, Evaluating Photogrammetry for 3D Footwear Impression Recovery**, PI, Not funded, \$281,755.

Invited Talks

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- 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

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- 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

bulletxtctr, *automated matching of 3d bullet scans*.

2018

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

2018

bulletsamplr, *Resampling of bullet signatures*.

2018

ImageAlignR, *Image registration algorithms for forensics*.

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

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.

2012

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

2013

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

2011

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

2011

Mentoring and Advising

Graduate Students

2018

Miranda Tilton, *Statistics*, Ph.D.

Footwear Class Characteristics and Computer Vision. Completed MS (Spring 2019).

Undergraduate Students

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.

Summer Research Programs

2019

Molly McDermott and Andrew Maloney, *Research Experience for Undergraduates*, Summer 2019.

Bullet Scan Quality and Machine Learning

2019

Syema Ailia, Emmanuelle Hernandez Morales, Tiger Ji, *Research Experience for Undergraduates*, Summer 2019.

Rapid Quality Control Tools for Confocal Microscopy Scans

2018

Ben Wonderlin and Jenny Kim, *Young Engineers and Scientists*, Summer 2018.

Footwear Class Characteristics and Computer Vision

Service

2019

Uncoast Unconference Organizing Committee, Des Moines, IA.

Organized the first R Uncoast Unconference to bring R developers in flyover country together for a 3-day event. Over 50% of the participants at the conference were women or minorities, and participants included students, academics, and industry R programmers with a variety of experience levels in R programming.

2019

Gertrude Cox Scholarship Committee Member, ASA.

Assisted with selection of the Gertrude Cox Scholarship recipients and honorable mentions.

2017

2019

Graphics Section Representative to the Council of Sections, ASA.