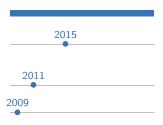
Susan Vanderplas

Curriculum Vitae

349a Hardin Hall North Wing 3310 Holdrege Street Lincoln, NE 68483-0961 402-472-7290 ⋈ susan.vanderplas@unl.edu ⊕ srvanderplas



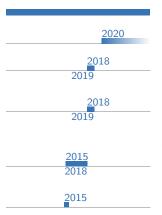
Education

PhD, Statistics, Iowa State University.

Dissertation: The Perception of Statistical Graphics

MS, Statistics, Iowa State University.

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



Professional Experience

Assistant Professor, Statistics Department, University of Nebraska, Lincoln.

Research Assistant Professor, Center for Statistics and Applications in Forensic Evidence, lowa State University.

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.

Statistical Analyst, Nebraska Public Power District.

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



Scholarship

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



14. ______

Vanderplas, **S.**, Röttger, C., Cook, D. & Hofmann, H. Statistical Significance Calculations for Scenarios in Visual Inference. *Stat.*

Contribution: Programming and analysis (30%), Writing (65%).

14. 2020

Vanderplas, **S.**, Carriquiry, A., Hofmann, H., Hamby, J. & Tai, X. H. in *Handbook of Forensic Statistics* (eds Banks, D., Kafadar, K., Kaye, D. & Tackett, M.) (New York: Chapman and Hall/CRC). https://doi.org/10.1201/9780367527709.

Contribution: Writing (50%).

14. _____

Vanderplas, **S.**, Nally, M., Klep, T., Cadevall, C. & Hofmann, H. Comparison of three similarity scores for bullet LEA matching. *Forensic Science International*. doi:10.1016/j.forsciint.2020.110167.

Contribution: Programming and analysis (20%), Writing (55%).

14. _____

Vanderplas, **S.**, Cook, D. & Hofmann, H. Testing Statistical Charts: What Makes a Good Graph? *Annual Review of Statistics and Its Application* **7**, 13.1–13.28.

Contribution: Writing (85%).

14.	2019	Rutter, L., VanderPlas , S. , Cook, D. & Graham, M. ggenealogy: An R Package for
		Visualizing Genealogical Data. <i>Journal of Statistical Software</i> 89 , 1–31. ISSN: 1548-7660.
14.	2019	VanderPlas, S., Goluch, R. & Hofmann, H. Framed! Reproducing and Revisiting 150 year old charts. <i>Journal of Computational and Graphical Statistics</i> . https://doi.org/10.1080/10618600.2018.1562937. Contribution: Programming and analysis (60%), writing (50%).
14.	2019	Sievert, C., VanderPlas, S., Cai, J., Ferris, K., Khan, F. U. F. & Hocking, T. D. Extending
14.	•	ggplot2 for linked and animated web graphics. <i>Journal of Computational and Graphical Statistics</i> 28, 299–308.
14.	2017	Vanderplas, S. & Hofmann, H. Clusters Beat Trend!? Testing Feature Hierarchy in
		Statistical Graphics. <i>Journal of Computational and Graphical Statistics</i> 26, 231–242. Contribution: Programming and analysis (90%), writing (50%).
14.	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. <i>Journal of Computational and Graphical Statistics</i> 26 , 775–778. Contribution : Writing (75%).
14.	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%).
14.	2015	Vanderplas , S. & Hofmann, H. Signs of the Sine Illusion - why we need to care. <i>Journal of Computational and Graphical Statistics</i> 24 , 1170–1190.
	0010	Contribution: Programming and analysis (50%), writing (60%).
14.	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. <i>BMC bioinformatics</i> 11 , S7.
14.	2009	Hull, R., Bortfeld, H. & Koons , S. Near-infrared spectroscopy and cortical responses to speech production. <i>The open neuroimaging journal</i> 3 , 26.
		Other Publications
3.	2019	Carriquiry, A., Hofmann, H., Tai, X. H. & VanderPlas , S. Machine learning in forensic applications. <i>Significance</i> 16 , 29–35. Contribution : Writing (50%).
3.	2013	Budrus, S., Vanderplas, S. & Cook, D. In tennis, do smashes win matches? <i>Significance</i> 10, 35–38.

In Progress Perception of Log Scales Assessment of perception and use of log scales to display exponential growth. Data collection stage.

> A Convolutional Neural Network for Outsole Recognition Use CNNs to automate identification of class characteristics in images of footwear outsoles. Submitted to Journal of Statistics and Data Mining, April 2020.

> 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. Submitted to Forensic Science International, Oct 2020.

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

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	Grants
2020	NIST , Center for Statistics and Applications in Forensic Evidence, PI, Funded (\$20 million total, \$456,930 sub-award).
2020	USDA CIGOFF , Improving the Economic and Ecological Sustainability of US Crop Production through On-Farm Precision Experimentation, PI, Funded (\$4,000,000 total).
2020	USDA NIFA AFRI , <i>Corn Residue Adaptive Grazing Strategies</i> , Collaborator, Submitted April 2020, \$300,000.
2020	USDA NIFA AFRI , Practical Framework to Facilitate Adoption of In-Season N Management Technology in Commercial Fields, Collaborator, Submitted April 2020, \$300,000.
2020	NSF , Al Institute: AgroAl: The Institute for Advancing Agriculture and Food in a Changing World Using Al, Collaborator, Not Funded, UNL subcontract request \$3,555,327.
2020 2021	NIJ R&D in Forensic Science, Automatic Acquisition and Identification of Footwear Class Characteristics, PI, Funded for 2020-2021 (\$386,984 total); paused during transfer to UNL.
2019	USDA AFRI-SAS , A Cyber-Physical System for Data-Intensive Farm Management, PI, Not funded, \$3,000,000 total.
2019	NSF , Overcoming the Rural Data Deficit to Improve Quality of Life and Community Services in Smart & Connected Small Communities, PI, Funded for 2020-2023 (\$1,500,000 total, \$123,445 subcontract).
2019	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.
0000	Invited Talks
2020	Do You See What I See? Leveraging Human Perception in Computer Vision Tasks., JSM, Section on Statistical Graphics, Online. Session Cancelled
2020	Perception and Visual Communication in a Global Pandemic , <i>Data Science, Statistics, and Visualization</i> , SAMSI, Online.
2020	One of these things is not like the others: Visual Statistics and Testing in Statistical Graphics, <i>Data Science Symposium</i> , South Dakota State University, Brookings, SD.
2020	Big Data, Big Experiments, and Big Problems , Plant and Animal Genome, San Diego, CA.
2019	Statistical Lineups for Bayesians , <i>JSM</i> , 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 Graph-
	ics, 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 , <i>JSM</i> , Boston, MA.
13	Signs of the Sine Illusion – why we need to care, JSM, Montreal, ON.
	Software
2020	vinference, Analysis of visual inference experiments.
2019	ShoeScrubR, Cleaning shoe print data for future statistical analysis.
2019	groovefinder, Identification of grooves in scans of bullet land engraved areas.
2018	ShoeScrapeR, Acquisition of Shoe Images and Metadata from Online Retailers.
2018	bulletxtrctr, Automated matching of 3d bullet scans.
2018	x3ptools, Reading, manipulating, and visualizing x3p files.
3	animint, animated, interactive web graphics for R using d3.js.
	Teaching
2020	Stat 850 - Computing Tools for Statisticians, <i>University of Nebraska, Lincoln</i> , Course materials: https://srvanderplas.github.io/unl-stat850/.
2020	Stat 218 - Introduction to Statistics, <i>University of Nebraska, Lincoln</i> . Mean evaluation: 4.2, Median: 4.0
2019	Stat 585 - Data Technologies for Statistical Analysis, <i>lowa State University</i> . Co-taught, assisted with curriculum development. Mean evaluation: 4.92, Median: 5.0
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
2017	size: 16 R Workshop , <i>Nebraska Public Power District</i> .
0010	3-day internal course on using R for data analysis.
2013 14	R Workshops, Iowa State.
	Introduction to R, ggplot2, data management and cleaning, package development, literate programming, and Shiny.
011	Statistical Methods for Research, Iowa State, TA.

Introduction to Business Statistics II, Iowa State, TA.

2011
Empirical Methods for Computer Science, Iowa State, TA.

	Mentoring and Advising
	Graduate Students
2020	Emily Robinson, Statistics, Ph.D.
	Perception and Visual Inference. Co-advised with Reka Howard.
2020	Denise Bradford, Statistics, Ph.D.
	Data Science and Interactive Graphics.
2019	Joseph Zemmels, Statistics, MS, Ph.D.
	Analysis and Matching of Cartridge Cases. Completed MS (Spring 2020). Co-advised with Heike Hofmann.
2019	Eryn Blagg, Statistics, MS, Ph.D.
2020	Analysis of Wear Development in Three-Dimensional Shoe Scans. Completed MS (Spring 2020).
<u>20</u> 18	Co-advised with Heike Hofmann
2019	Miranda Tilton, Statistics, MS. Footwear Class Characteristics and Computer Vision. Completed MS (Spring 2019).
	rootwear class characteristics and compater vision. completed in (opining 2015).
	Undergraduate Students
2019	Jason Seo, Computer Science and Statistics, Undergraduate Research.
<u>2</u> 018	R package for visualization of neural networks using the python library keras-vis.
2019	Talen Fisher, Computer Engineering, Undergraduate Research.
	Tools for working with x3p files, database design for storing bullet scans and intermediate analysis products.
	Curaman Dagaayah Duamuma
2019	Summer Research Programs Molly McDormott and Andrew Molonov, Personal Evaporations for Undergraduates
•	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.
2018	Rapid Quality Control Tools for Confocal Microscopy Scans
2010	Ben Wonderlin and Jenny Kim , <i>Young Engineers and Scientists</i> , Summer 2018. Footwear Class Characteristics and Computer Vision
	Tootwear Class Characteristics and Computer Vision
	Service
2020	
2020	Graphics Section Program Chair, ASA.
•	Program Committee (Graphics) , Symposium on Data Science and Statistics 2020.
2019 2021	Gertrude Cox Scholarship Committee Member, ASA.
2019	Assisted with selection of the Gertrude Cox Scholarship recipients and honorable mentions.
	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
<u>201</u> 7	levels in R programming. Graphics Section Representative to the Council of Sections, ASA.
2019	Graphics Section representative to the Council of Sections, 757.