

Susan Vanderplas

Curriculum Vitae

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Education

2009 — 2015 **Ph.D.**, *Statistics*, Iowa State University
2009 — 2011 **MS**, *Statistics*, Iowa State University
2005 — 2009 **BS**, *Psychology & Applied Mathematical Sciences*, Texas A&M University

Professional Experience

2020 — **Assistant Professor**, *Statistics*, University of Nebraska-Lincoln
Feb 2018 — Dec 2019 **Research Assistant Professor**, *Center for Statistics and Applications in Forensic Evidence*, Iowa State University
Aug 2015 — Feb 2018 **Statistical Analyst**, Nebraska Public Power District
Apr 2015 — Oct 2015 **Postdoc**, *Office of the Vice President for Research*, Iowa State University

Publications

Student advisees indicated with *. Contribution percentages estimated from git contributions using `git fame` where possible. Not all projects have github repositories for which this is meaningful. Most of these papers are highly collaborative, and intellectual contributions are typically shared between all authors.

Software

Dates show initial involvement; only packages which are no longer maintained have end dates.

2021 — **ggpcp**, *Generalized parallel coordinate plots*, <https://github.com/heike/ggpcp>
2020 — **vinference**, *Analysis of visual inference experiments*, <https://github.com/heike/vinference>
2019 — 2021 **groovefinder**, *Identification of grooves in scans of bullet land engraved areas*, <https://github.com/heike/groovefinder>
2019 — **cmcR**, *Automated matching of 3d cartridge case scans using the congruent matching cells algorithm*, <https://github.com/CSAFE-ISU/cmcR>
2018 — **bulletxtctr**, *Automated matching of 3d bullet scans*, <https://github.com/heike/bulletxtctr>
2018 — **x3ptools**, *Reading, manipulating, and visualizing x3p files*, <https://github.com/heike/x3ptools>
2018 — **bulletsamplr**, *Resampling of bullet signatures*, <https://github.com/srvanderplas/bulletsamplr>
2018 — 2020 **ShoeScapeR**, *Acquisition of shoe images and metadata from online retailers*, <https://github.com/srvanderplas/shoescraper>
2018 — 2021 **ImageAlignR**, *Image registration algorithms for forensics*, <https://github.com/srvanderplas/imagealignr>

2013
2015

animint, *Animated, interactive web graphics for R using ggplot2 and d3.js*, <https://github.com/tdhock/animint>

Grants

Under Review

2023

NSF: CAREER, *What Do You See? Perception, Decisions, and Statistical Graphics*, PI, Total: \$666,485

Funded

2021
2023

NIJ: R&D In Forensic Science, *Automatic Acquisition and Identification of Footwear Class Characteristics*, PI, Total: \$380,650

2021
2022

USDA-NIFA: Agriculture and Food Research Initiative, *Corn Residue Adaptive Grazing Strategies*, Collaborator, Total: \$300,000

2020
2025

NIST: Center for Statistics and Applications in Forensic Evidence, *Footwear Class Characteristics and Human Factors*, PI, Total: \$20,000,000, Sub: \$456,930

2021
2023

USDA-NRCS: Conservation Innovation Grant On-Farm Trials, *Improving the Economic and Ecological Sustainability of US Crop Production through On-Farm Precision Experimentation*, PI, Total: \$4,000,000, Sub: \$400,000 (Split between 3 UNL co-PIs)

2020
2023

NSF: Smart and Connected Communities, *Overcoming the Rural Data Deficit to Improve Quality of Life and Community Services in Smart & Connected Small Communities*, PI, Total: \$1,500,000, Sub: \$123,445

2019
2020

NIJ: R&D In Forensic Science, *Statistical Infrastructure for the Use of Error Rate Studies in the Interpretation of Forensic Evidence*, Collaborator, Total: \$197,699, Sub: \$57,596

Not Funded

2022

NIJ: R&D In Forensic Science, *Physical Simulation of Lower Body Biomechanics for Artificial Shoe Wear and Forensics Analysis*, Co-PI, Total: \$299,859, Sub: \$73,693

2020

USDA-NIFA: Agriculture and Food Research Initiative, *Practical Framework to Facilitate Adoption of In-Season N Management Technology in Commercial Fields*, Collaborator, Total: \$300,000

2020

NSF: National Artificial Intelligence Research Institutes, *AI Institute: AgroAI: The Institute for Advancing Agriculture and Food in a Changing World Using AI*, Collaborator, Total: \$20,000,000

2019

USDA-AFRI: Sustainable Agricultural Systems, *A Cyber-Physical System for Data-Intensive Farm Management*, PI, Total: \$3,000,000

2018


NIJ: R&D In Forensic Science, *Evaluating Photogrammetry for 3D Footwear Impression Recovery*, PI, Total: \$281,755

Awards

2012

Student Paper Award, *Graphics Section, American Statistical Association*




Talks

 provides a link to slides, where available

Invited

2024

Cultivating Insights: Harnessing the Power of Data Visualization in Agriculture , *International Conference for On-Farm Precision Experimentation*, Corpus Christie, TX

2023	Multimodal User Testing: Producing comprehensive, task-focused guidelines for chart design  , <i>Australian Statistical Conference</i> , Wollongong, NSW, AUS
2023	How Do You Define a Circle? Perception and Computer Vision Diagnostics  , <i>International Association for Statistical Computing</i> , Asian Regional Section Meeting, Macquarie, NSW, AUS
2023	Multimodal User Testing: Producing comprehensive, task-focused guidelines for chart design  , <i>International Conference on Data Science</i> , Universidad Diego Portales, Chile
2023	Testing Statistical Graphics  , <i>JSM</i> , Section on Statistical Graphics, Toronto, ON, CA
2021	How do you define a circle? Perception and Computer Vision Diagnostics  , <i>JSM</i> , Section on Statistical Graphics, Seattle, WA
2021	Pandemics, Graphics, and Perception of Log Scales  , <i>R Ladies DC</i> , Washington, DC
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  , <i>Plant and Animal Genome</i> , 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  , <i>SDSS</i> , Reston, VA
2015	Animint: Interactive Web-Based Animations using Ggplot2's Grammar of Graphics  , <i>JSM</i> , Section on Statistical Graphics, Seattle, WA
2014	The curse of three dimensions: Why your brain is lying to you  , <i>JSM</i> , Section on Statistical Graphics, Boston, MA
	Contributed
2022	Local Population Footwear Class Characteristics - An End-to-End Pipeline for Automatic Data Acquisition and Analysis  , <i>International Association for Identification Meeting</i> , Omaha, NE
2022	From Scans to Scores , <i>International Association for Identification Meeting</i> , Omaha, NE
2022	How do you define a circle? Perception and Computer Vision Diagnostics  , <i>SDSU Data Science Symposium</i> , South Dakota State University, Brookings, SD
2021	Welcome to Forensic Statistics  , <i>Data Mishaps Night</i> , Online
2018	Framed Charts in the 1870 Statistical Atlas  , <i>JSM</i> , Section on Statistical Graphics, Vancouver, BC, CA
2017	A Bayesian Approach to Visual Inference , <i>JSM</i> , Section on Statistical Graphics, Baltimore, MD
2016	Clusters Beat Trend!? Testing Feature Hierarchy in Statistical Graphics  , <i>JSM</i> , Section on Statistical Graphics, Chicago, IL
2015	Visual Aptitude and Statistical Graphics , <i>InfoVis</i> , IEEE, Chicago, IL
2014	Do You See What I See? Using Shiny for User Testing  , <i>JSM</i> , Section on Statistical Graphics, Boston, MA
2014	Animint: Interactive, Web-Ready Graphics with R  , <i>Great Plains R User Group</i> , Sioux Center, IA

2013

Signs of the Sine Illusion – why we need to care, *JSM*, Section on Statistical Graphics, Montreal, ON, CA

Seminars

2024

Building a CV with R and Google Sheets [📄](#), *Graphics Group*, University of Nebraska, Online

2024

Using Git Submodules [📄](#), *Graphics Group*, University of Nebraska, Online

2023

Graphics and Cognition: How Do We Perceive Charts? [📄](#), *Graphics Group*, University of Nebraska-Lincoln, Iowa State University, and other interested affiliates, Online

2023

What Makes a Good Graph? Graphical Testing and Principles for Graph Design [📄](#), *Center for Brain, Biology, and Behavior*, University of Nebraska, Lincoln, NE

2023

Inconclusive Conclusions: Biases and Consequences [📄](#), *Biostatistics*, Johns Hopkins University, Baltimore, MD

2022

Reproducible Science: Statistics, Forensics, and the Law [📄](#), *Statistics*, University of Nebraska - Lincoln, Lincoln, NE

2022

How to make good charts [📄](#), *Complex Biosystems*, University of Nebraska - Lincoln, Lincoln, NE

2022

Pandemics, Graphics, and Perception of Log Scales [📄](#), *Math*, University of Nebraska - Omaha, Omaha, NE

2022

Automatic Acquisition of Footwear Class Characteristics [📄](#), *Center for Statistical Applications in Forensic Evidence*, Online

2021

Pandemics, Graphics, and Perception of Log Scales [📄](#), *NUMBATS*, Monash University, Melbourne, Vic, AUS

2021

Exploring Rural Quality of Life Using Data Science and Public Data [📄](#), *QQPM*, University of Nebraska - Lincoln, Lincoln, NE

2021

Inconclusive Conclusions: Biases and Consequences [📄](#), *Law and Psychology Brown Bag*, University of Nebraska - Lincoln, Lincoln, NE

2021

Visual Statistics: Communication and Graphical Testing [📄](#), *Animal Science*, University of Nebraska - Lincoln, Lincoln, NE

2021

How to Make Good Charts [📄](#), *Biological and Systems Engineering GSA*, University of Nebraska - Lincoln, Lincoln, NE

2020

Statistical Evaluation of Firearms and Toolmark Evidence [📄](#), *Statistics*, University of Nebraska - Lincoln, Lincoln, NE

Teaching

2024

STAT 151, *Introduction to Statistical Computing*, University of Nebraska - Lincoln, Flipped synchronous

2024

STAT 251, *Data Wrangling*, University of Nebraska - Lincoln, Flipped synchronous

2023

STAT 151, *Introduction to Statistical Computing*, University of Nebraska - Lincoln, Flipped synchronous. Evals: 4.55 (mean), 5 (median)

2023

STAT 251, *Data Wrangling*, University of Nebraska - Lincoln, Flipped synchronous. Evals: 4.30 (mean), 5 (median)

2023

STAT 892, *Data Technologies for Statistical Analysis*, University of Nebraska - Lincoln, Co-taught with ISU Stat 585, Hybrid synchronous

2023

STAT 850, *Computing Tools for Statisticians*, University of Nebraska - Lincoln, Flipped synchronous. Evals: 4.31 (mean), 5 (median)

2023

STAT 892, *Writing in Statistics/TA Prep*, University of Nebraska - Lincoln, In person synchronous. Evals: 4.13 (mean), 4 (median)

2022

STAT 151, *Introduction to Statistical Computing*, University of Nebraska - Lincoln, Flipped synchronous. Evals: 4.95 (mean), 5 (median)

2022

STAT 218, *Introduction to Statistics*, University of Nebraska - Lincoln, Online asynchronous. Evals: 3.72 (mean), 4 (median)

2022

STAT 850, *Computing Tools for Statisticians*, University of Nebraska - Lincoln, Flipped synchronous. Evals: 4.33 (mean), 5 (median)

2022

STAT 892, *Writing in Statistics/TA Prep*, University of Nebraska - Lincoln, In person synchronous. Evals: 4.29 (mean), 5 (median)

2022

STAT 982, *Advanced Inference*, University of Nebraska - Lincoln, Co-taught with Bertrand Clarke. Evals: 4.34 (mean), 5 (median)

2021

STAT 218, *Introduction to Statistics*, University of Nebraska - Lincoln, Online asynchronous.. Evals: 4.01 (mean), 4 (median)

2021

STAT 850, *Computing Tools for Statisticians*, University of Nebraska - Lincoln, Hybrid, flipped, synchronous. Evals: 4.79 (mean), 5 (median)

2020

STAT 218, *Introduction to Statistics*, University of Nebraska - Lincoln, Initially in person synchronous, then online asynchronous. Evals: 4.20 (mean), 4 (median)

2020

STAT 850, *Computing Tools for Statisticians*, University of Nebraska - Lincoln, Hybrid, flipped, synchronous. Evals: 4.76 (mean), 5 (median)

2019

STAT 585, *Data Technologies for Statistical Analysis*, Iowa State, Co-taught with Heike Hofmann. Evals: 4.92 (mean), 5 (median)

Mentoring

Ph.D.

2023

Tyler Wiederich, *Perception of Three Dimensional Graphics*, University of Nebraska - Lincoln

2023

Muxin Ha, *Automatic Recognition of Shoe Class Characteristics*, University of Nebraska - Lincoln

2022

Weihao (Patrick) Li, *Advances in Artificial Intelligence for Data Visualization: Developing Computer Vision Models to Automate Reading of Data Plots, with Application to Predictive Model Diagnostics*, co-advised with Dianne Cook and Emi Tanaka, Monash University

2021

Denise Bradford, *Dashboards for Exploratory Multivariate Data Analysis*, University of Nebraska - Lincoln

2021

2024

Rachel Rogers, *Explainable Machine Learning for Forensics in Courtrooms*, University of Nebraska - Lincoln

2020

2023

Alison Kleffner, *Spatial Statistics and Visualization in Ecology and Agriculture*, co-advised with Yawen Guan, University of Nebraska - Lincoln

2020

2023

Joseph Zemmels, *Analysis and Matching of Cartridge Cases*, co-advised with Heike Hofmann, Iowa State University

2020

2022

Emily Robinson, *Perception of Log Scales*, co-advised with Reka Howard, University of Nebraska - Lincoln

MS

2023
2025 **Carson Trego**, *A Statistical Approach to Learning Computer Vision*, University of Nebraska - Lincoln

2022
2023 **Tyler Wiederich**, *Perception of Three Dimensional Graphics*, University of Nebraska - Lincoln

2022
2023 **Muxin Ha**, *Automatic Recognition of Shoe Class Characteristics*, University of Nebraska - Lincoln

2021
2022 **Jayden Stack**, *Automatic Recognition of Shoe Class Characteristics*, University of Nebraska - Lincoln

2020 **Ved Piyush**, *Machine Learning and Computer Vision*, University of Nebraska - Lincoln

2019
2020 **Joseph Zemmels**, *Analysis and Matching of Cartridge Cases*, co-advised with Heike Hofmann, Iowa State University

2019
2020 **Eryn Blagg**, *Analysis of Wear Development in Three-Dimensional Shoe Scans*, co-advised with Heike Hofmann, Iowa State University

2018
2019 **Miranda Tilton**, *Footwear Class Characteristics and Computer Vision*, Iowa State University

Undergraduate

2021 **Xinyu Liu**, *Machine Learning for Shoe Sole Images*, UNL FYRE Program, University of Nebraska - Lincoln

2019 **Jason Seo**, *R package for visualization of neural networks using the python library keras-vis*, Iowa State University

2018
2019 **Talen Fisher**, *Database engineering and tools for working with x3p files*, Iowa State University

Summer

2019 **Molly McDermott and Andrew Maloney**, *Bullet Scan Quality and Machine Learning*, Iowa State University

2019 **Syema Ailia, Emmanuelle Hernandez Morales, Tiger Ji**, *Rapid quality control tools for confocal microscopy scans*, Iowa State University

2018 **Ben Wonderlin, Jenny Kim**, *Footwear Class Characteristics and Computer Vision*, Young Engineers and Scientists Program, Iowa State University

Service

Discipline

2023
2025 **Member**, *Advisory Committee on Forensic Science*, ASA

2023
2024 **Chair**, *Section on Statistical Graphics*, ASA

2022
2023 **Chair-Elect**, *Section on Statistical Graphics*, ASA

2021
2024 **Associate Editor**, *Journal of Computational and Graphical Statistics*

2020
2026 **Associate Editor**, *R Journal*

2020
2022 **Program Chair**, *Section on Statistical Graphics*, ASA

2020 **Program Committee (Graphics)**, *Symposium on Data Science and Statistics (2020)*

2019
2021 **Member**, *Gertrude Cox Scholarship Committee*, ASA

2019

Organizing Committee, *Uncoast Unconference*, 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.

2017

2019

Council of Sections Representative, *Section on Statistical Graphics*, ASA

Institution

2023

Member, *Ad-Hoc Committee on EM 16*, Faculty Senate

2022

Representative, *Statistics Department*, Faculty Senate

2021

2022

Vice-Chair, *Statistics Department Representative*, Faculty Advisory Council

2021

Member, *Digital Ag Minor Committee*

2021

Member, *Data Science Joint Committee*, Committee of Math, Computer Science, and Statistics departments to develop a comprehensive undergraduate data science program

2020

Poster Judge, *SCIL 101*, Fall Semester

Department

2021

2022

Member, *MS Comprehensive Exam Committee*

2021

Coordinator, *R workshops*, University of Nebraska Lincoln, Develop and coordinate a week of R workshops taught in January and May each year

2020

2021

Organizer, *Seminar*, Statistics Department

2019

2020

Member, *Undergraduate Program Committee*, Statistics Department, Design the undergraduate statistics program, propose new classes to support the program, and submit proposals to the university for new courses and programs.

Reviewing

I have provided peer reviews for CRC/Chapman & Hall Book, IEEE InfoVis, Journal of Computational and Graphical Statistics, R Journal, Forensic Science International, Symmetry, Forensic Sciences Research, Law, Probability, and Risk, Harvard Data Science Review, Journal of the American Statistical Association, The American Statistician

Professional Development

2023

Digital Accessibility Training, *Online training - creating accessible digital content*

2022

2023

Faculty Fellow, *Nebraska Governance and Technology Center*

2021

2022

Peer Review of Teaching Program, *Create a course portfolio for Stat 850 in order to assess course design and analyze student engagement and learning*

2020

New Faculty Development Program

2020

Summer Institute for Online Teaching, *Online course structure and backwards design principles*