Susan Vanderplas

Curriculum Vitae

16.

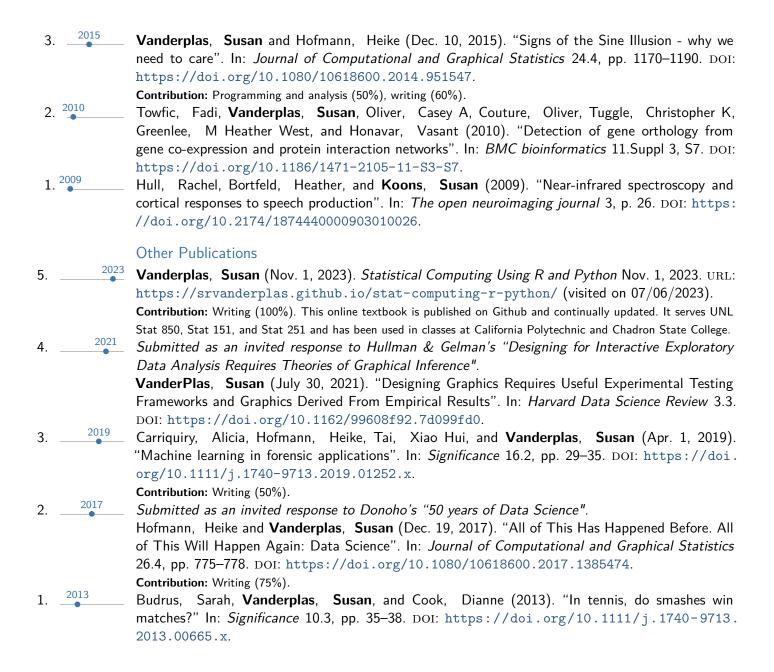
10.6339/22-JDS1083.

Contribution: Writing (10%), Advising (80%).

| | 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 |
| 2020 | Assistant Professor, Statistics Department, University of Nebraska, Lincoln |
| 2018 | Research Assistant Professor , Center for Statistics and Applications in Forensic Evidence, Iowa State University |
| 2015 2019 | Statistical Analyst/Consultant, Nebraska Public Power District |
| 2015 | Postdoc, Iowa State University Office of the Vice President for Research |
| | 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. |
| | Peer Reviewed Publications |
| 19. 2023 | Robinson, Emily A.*, Howard, Reka, and VanderPlas , Susan (Oct. 2, 2023). "Eye Fitting Straight Lines in the Modern Era". In: <i>Journal of Computational and Graphical Statistics</i> 32.4, pp. 1537–1544. ISSN: 1061-8600. DOI: 10.1080/10618600.2022.2140668. |
| 18 | Contribution: Programming and analysis (10%), Writing (10%), Advising (60%). VanderPlas, Susan, Ge, Yawei*, Unwin, Antony, and Hofmann, Heike (Mar. 2023). "Penguins Co Parallel, a grammar of graphics framework for generalized parallel goordinate plats". In: Journal |
| | Go Parallel: a grammar of graphics framework for generalized parallel coordinate plots". In: <i>Journal of Computational and Graphical Statistics</i> . DOI: 10.1080/10618600.2023.2195462. Contribution: Writing (50%). |
| 17. 2023 | Zemmels, Joseph*, Vanderplas , Susan , and Hofmann, Heike (Feb. 9, 2023). "A Study in Reproducibility: The Congruent Matching Cells Algorithm and cmcR package". In: <i>R Journal</i> 14 (4), pp. 79–102. DOI: 10.32614/RJ-2023-014. |
| | Contribution: Programming and analysis (10%), Writing (20%), Advising (40%). |
| 1.6 /0/.5 | |

Robinson, Emily*, Howard, Reka, and **VanderPlas**, **Susan** (Jan. 2023). "You Draw It: Implementation of visually fitted trends with r2d3". In: *Journal of Data Science*. ISSN: 1680-743X. DOI:





Submitted Papers

- A Plot is Worth a Thousand Tests: Assessing Residual Diagnostics with the Lineup Protocol submitted to JCGS in May, revision accepted subject to edits in December 2023.
- One Model that Fits Them All: Psychometrics with Generalized Linear Mixed Effects Models Conference Publication. Accepted, Electronic Imaging 2024
- Incorrect Statistical Reasoning in Guyll et al. Leads to Biased Claims about Strength of Forensic Evidence Revision submitted to PNAS November 2023.
- Perception and Cognitive Implications of Logarithmic Scales for Exponentially Increasing Data: Perceptual Sensitivity Tested with Statistical Lineups submitted to JCGS in July 2023, revision submitted January 12, 2024.
- **Demonstrative Evidence and the Use of Algorithms in Jury Trials** submitted to JDS in August 2023, revision submitted January 22, 2024.
- **Evaluating Perceptual Judgements on 3D Printed Bar Charts** submitted to JDS in August 2023, revision submitted January 22, 2024.
- **Topographic Images of Breech Face Impressions on Cartridge Case Primer Surfaces** Data set. Submitted to Scientific Data, September 2023
- Misuse of Statistical Method Results in Highly Biased Interpretation of Forensic Evidence in Guyll et al. (2023) submitted to Law, Probability, and Risk, November 2023.
- Can You See The Change? Change Point Detection Using Visual Inference submitted to JCGS, November 2023.

Grants

Under Review

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

Funded



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



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



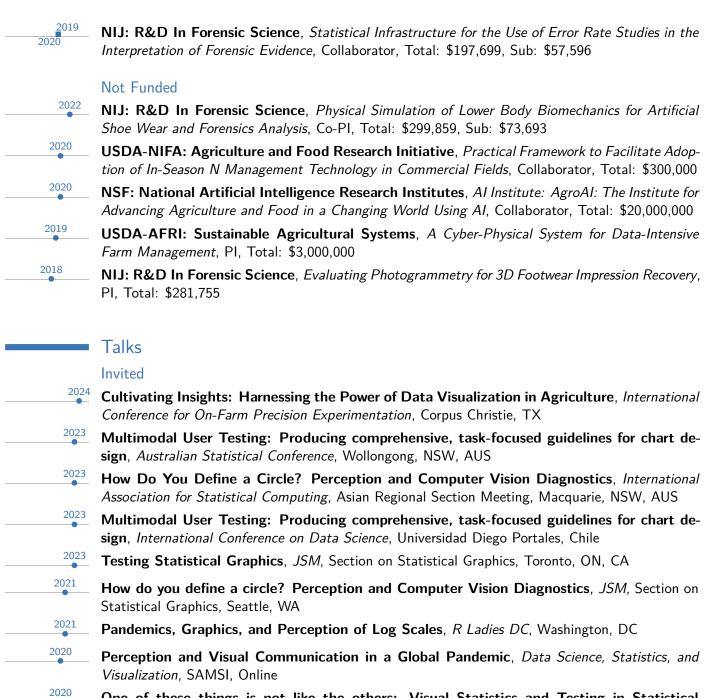
NIST: Center for Statistics and Applications in Forensic Evidence, Footwear Class Characteristics and Human Factors, PI, Total: \$20,000,000, Sub: \$456,930



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)



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



One of these things is not like the others: Visual Statistics and Testing in Statistical Graphics, Data Science Symposium, South Dakota State University, Brookings, SD

Big Data, Big Experiments, and Big Problems, Plant and Animal Genome, San Diego, CA

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

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

Animint: Interactive Web-Based Animations using Ggplot2's Grammar of Graphics, *JSM*, Section on Statistical Graphics, Seattle, WA

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

Contributed

2020

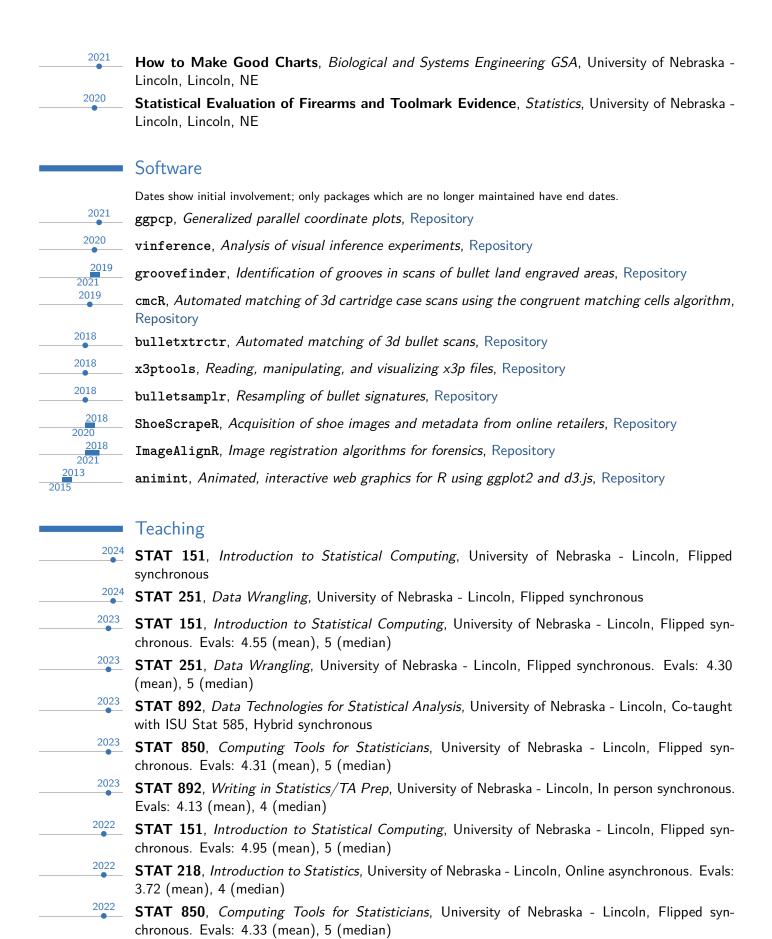
2019

2018

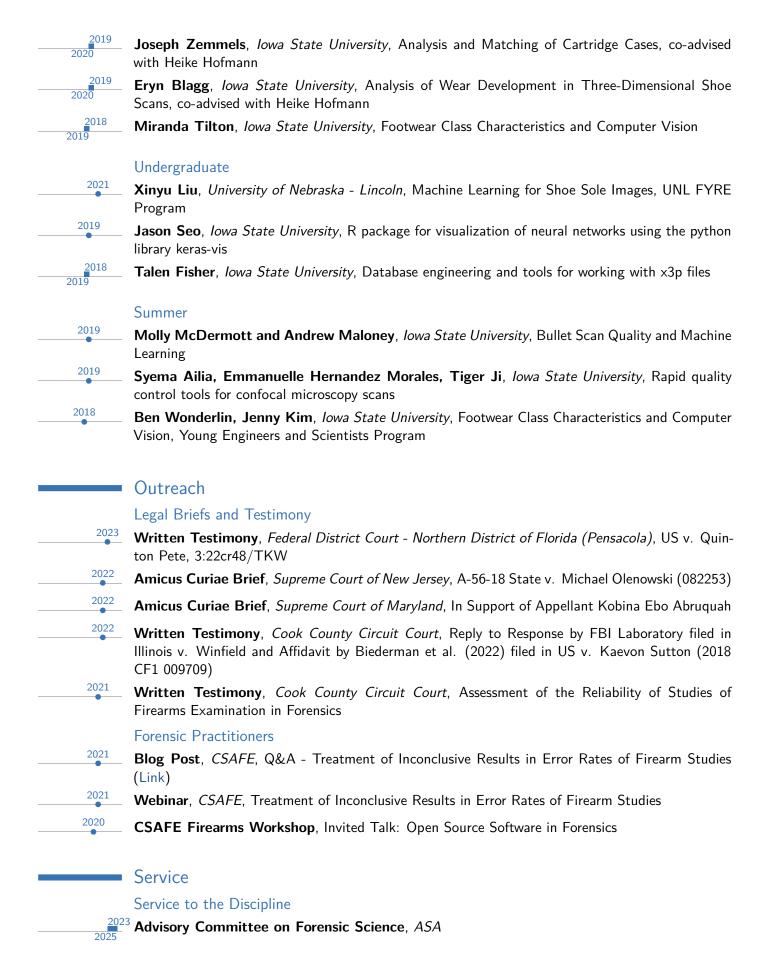
2015

2014





| 2022 | STAT 892 , <i>Writing in Statistics/TA Prep</i> , University of Nebraska - Lincoln, In person synchronous. Evals: 4.29 (mean), 5 (median) |
|------------------------------|--|
| 2022 | STAT 982 , <i>Advanced Inference</i> , University of Nebraska - Lincoln, Co-taught with Bertrand Clarke. Evals: 4.34 (mean), 5 (median) |
| 2021 | STAT 218 , <i>Introduction to Statistics</i> , University of Nebraska - Lincoln, Online asynchronous Evals: 4.01 (mean), 4 (median) |
| 2021 | STAT 850 , <i>Computing Tools for Statisticians</i> , University of Nebraska - Lincoln, Hybrid, flipped, synchronous. Evals: 4.79 (mean), 5 (median) |
| 2020 | STAT 218 , <i>Introduction to Statistics</i> , University of Nebraska - Lincoln, Initially in person synchronous, then online asynchronous. Evals: 4.20 (mean), 4 (median) |
| 2020 | STAT 850 , <i>Computing Tools for Statisticians</i> , University of Nebraska - Lincoln, Hybrid, flipped, synchronous. Evals: 4.76 (mean), 5 (median) |
| 2019 | STAT 585 , <i>Data Technologies for Statistical Analysis</i> , Iowa State, Co-taught with Heike Hofmann. Evals: 4.92 (mean), 5 (median) |
| | Mentoring and Advising |
| | Ph.D. |
| 2023 | Tyler Wiederich , <i>University of Nebraska - Lincoln</i> , Perception of Three Dimensional Graphics |
| 2023 | Muxin Ha, University of Nebraska - Lincoln, Automatic Recognition of Shoe Class Characteristics |
| 2022 | Weihao (Patrick) Li, <i>Monash University</i> , 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 |
| 2021 | Denise Bradford , <i>University of Nebraska - Lincoln</i> , Dashboards for Exploratory Multivariate Data Analysis |
| 2021 | Rachel Rogers, <i>University of Nebraska - Lincoln</i> , Explainable Machine Learning for Forensics in Courtooms |
| 2020 | Alison Kleffner , <i>University of Nebraska - Lincoln</i> , Spatial Statistics and Visualization in Ecology and Agriculture, co-advised with Yawen Guan |
| 2020 | Joseph Zemmels , <i>Iowa State University</i> , Analysis and Matching of Cartridge Cases, co-advised with Heike Hofmann |
| 2020 | Emily Robinson , <i>University of Nebraska - Lincoln</i> , Perception of Log Scales, co-advised with Reka Howard |
| | MS |
| 2023 | Carson Trego, University of Nebraska - Lincoln, A Statistical Approach to Learning Computer Vision |
| 2022 | Tyler Wiederich, University of Nebraska - Lincoln, Perception of Three Dimensional Graphics |
| 2023 2022 2023 2021 | Muxin Ha, University of Nebraska - Lincoln, Automatic Recognition of Shoe Class Characteristics |
| 2021 | Jayden Stack , <i>University of Nebraska - Lincoln</i> , Automatic Recognition of Shoe Class Characteristics |
| 2020 | Ved Piyush, University of Nebraska - Lincoln, Machine Learning and Computer Vision |
| | |



| 2023 | Graphics Section Chair, ASA |
|----------------------|--|
| 2023 | Graphics Section Student Paper Award Committee, ASA |
| 2022 2023 2021 | Graphics Section Chair-Elect, ASA |
| 2021 | Associate Editor, Journal of Computational and Graphical Statistics |
| 2020 | Associate Editor, R Journal |
| 2020 | Graphics Section Program Chair (2021) , <i>ASA</i> , Official duties include planning JSM sessions in 2020 and running the Data Expo in 2022 |
| 2020 | Program Committee (Graphics) , Symposium on Data Science and Statistics 2020, Visualization Track co-chair |
| 2019 | Gertrude Cox Scholarship Committee Member , <i>ASA</i> Assisted with selection of the Gertrude Cox Scholarship recipients and honorable mentions |
| 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. |
| 2017 | Graphics Section Representative to the Council of Sections, ASA |
| Reviewing | I have reviewed papers for JCGS, IEEE InfoVis, R Journal, JASA, The American Statistician, Forensic Science International, Law Probability and Risk, Forensic Sciences Research, and Symmetry. |
| | Department and Institutional Service |
| 2021 | R Workshop Coordinator |
| 2021 | Develop and coordinate a week of R workshops taught in January, and May each year |
| 2022 | Faculty Senate, Statistics Department Representative |
| 2022 2021 | Faculty Advisory Council, Vice-Chair |
| 2022 | MS Comp Exam Committee Committee to evaluate the current MS Stat Day presentation component and consider other options for the MS program |
| 2021 | Digital Ag Minor Committee Committee to develop a digital ag minor |
| 2021 | Data Science Joint Committee Committee of Math, Computer Science, and Statistics departments to develop a comprehensive undergraduate data science program |
| 2020 | Seminar Organizer Arrange speakers for the department seminar |
| 2020 | SCIL 101 Poster Judge, Fall Semester |
| 2019 | Undergraduate Program Committee |
| 2020 | Design an undergraduate statistics major and submit the proposal to the university |
| 2225 | Training & Professional Development |
| 2023 | Digital Accessibility Training |
| 2022 | Online training, creating accessibile digital content. Nebraska Governance and Technology Center, Faculty Fellow |
| 2023 | The state of the s |

