

NICK STRAYER

I have made visualizations viewed by hundreds of thousands of people¹, sped up query times for 25 terabytes of data by an average of 4,800 times², and built packages for R³ that let you do magic⁴.

Currently searching for a position that allows me to build tools leveraging a combination of visualization, machine learning, and software engineering to help people explore and understand their data in new and useful ways.



EDUCATION

- Current
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2015
- **PhD. Candidate, Biostatistics**
Vanderbilt University 📍 Nashville, TN
 - Working on Bayesian network models & interactive visualization platforms
 - University Graduate Fellow
 - **B.S., Mathematics, Statistics (minor C.S.)**
University of Vermont 📍 Burlington, VT
 - Thesis: An agent based model of Diel Vertical Migration patterns of *Mysis diluviana*

RESEARCH EXPERIENCE

- Current
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2015
- **Graduate Research Assistant**
TBILab (Yaomin Xu's Lab) 📍 Vanderbilt University
 - Primarily working with large EHR and Biobank datasets.
 - Developing network-based methods to investigate and visualize clinically relevant patterns in data.
 - **Data Science Researcher**
Data Science Lab 📍 Johns Hopkins University
 - Building R Shiny applications in the contexts of wearables and statistics education.
 - Work primarily done in R Shiny and Javascript (node and d3.js).
 - **Undergraduate Researcher**
Rubenstein Ecosystems Science Laboratory 📍 University of Vermont
 - Analyzed and visualized data for CATOS fish tracking project.
 - Head of data mining project to establish temporal trends in population densities of *Mysis diluviana* (Mysis).
 - Ran project to mathematically model the migration patterns of Mysis (honors thesis project.)

View this CV online with links at nickstrayer.me/cv/

CONTACT

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🐦 [NicholasStrayer](https://twitter.com/NicholasStrayer)

🌐 github.com/nstrayer

🌐 nickstrayer.me

🌐 [linkedin.com/in/nickstrayer](https://www.linkedin.com/in/nickstrayer)

LANGUAGE SKILLS

| | |
|--------------------|--|
| R | |
| Javascript (d3.js) | |
| C++ | |
| Python | |
| Bash | |
| SQL | |
| AWK | |

[pagedown](https://pypi.org/project/pagedown/)

on
github.com/nstrayer/cv

- 2015
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2015

Human Computer Interaction Researcher
 LabInTheWild (Reineke Lab)

📍 University of Michigan

 - Led development and implementation of interactive data visualizations to help users compare themselves to other demographics.
- 2014
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2013

Undergraduate Researcher
 Bentil Laboratory

📍 University of Vermont

 - Developed mathematical model to predict the transport of sulfur through the environment with applications in waste cleanup.
- 2013
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2012

Research Assistant
 Adair Laboratory

📍 University of Vermont

 - Independently analyzed and constructed statistical models for large data sets pertaining to carbon decomposition rates.



INDUSTRY EXPERIENCE

- 2016
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2016

Data Journalist - Graphics Department
 New York Times

📍 New York, New York

 - Reporter with the graphics desk covering topics in science, politics, and sport.
 - Work primarily done in R, Javascript, and Adobe Illustrator.
- 2015
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2015

Engineering Intern - User Experience
 Dealer.com

📍 Burlington, VT

 - Built internal tool to help analyze and visualize user interaction with back-end products.
- 2015
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2015

Data Science Intern
 Dealer.com

📍 Burlington, VT

 - Worked with the product analytics team to help parse and visualize large stores of data to drive business decisions.
- 2015
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2014

Data Artist In Residence
 Conduce

📍 Carpinteria, CA

 - Envisioned, prototyped and implemented visualization framework in the course of one month.
 - Constructed training protocol for bringing third parties up to speed with new protocol.
- 2014
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2014

Software Engineering Intern
 Conduce

📍 Carpinteria, CA

 - Incorporated d3.js to the company's main software platform.

I have worked in a variety of roles ranging from journalist to software engineer to data scientist. I like collaborative environments where I can learn from my peers.



TEACHING EXPERIENCE

2020

• Javascript for Shiny Users

RStudio::conf 2020

- Served as TA for two day workshop on how to leverage Javascript in Shiny applications
- Lectured on using R2D3 package to build interactive visualizations.⁵

2019

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2019

• Data Visualization Best Practices

DataCamp

- Designed from bottom up course to teach best practices for scientific visualizations.
- Uses R and ggplot2.
- In top 10% on platform by popularity.

2019

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2019

• Improving your visualization in Python

DataCamp

- Designed from bottom up course to teach advanced methods for enhancing visualization.
- Uses python, matplotlib, and seaborn.

2018

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2017

• Advanced Statistical Learning and Inference

Vanderbilt Biostatistics Department

📍 Nashville, TN

- TA and lectured
- Topics covered from penalized regression to boosted trees and neural networks
- Highest level course offered in department

2018

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2018

• Advanced Statistical Computing

Vanderbilt Biostatistics Department

📍 Nashville, TN

- TA and lectured
- Covered modern statistical computing algorithms
- 4th year PhD level class

2017

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2017

• Statistical Computing in R

Vanderbilt Biostatistics Department

📍 Nashville, TN

- TA and lectured
- Covered introduction to R language for statistics applications
- Graduate level class



SELECTED DATA SCIENCE WRITING

2019

• Using AWK and R to Parse 25tb⁷

LiveFreeOrDichotomize.com

- Story of parsing large amounts of genomics data.
- Provided advice for dealing with data much larger than disk.
- Reached top of HackerNews.

I am passionate about education. I believe that no topic is too complex if the teacher is empathetic and willing to think about new methods of approaching task.

I regularly blog about data science and visualization on my blog LiveFreeOrDichotomize.⁶

- 2018 ● **Classifying physical activity from smartphone data⁸**
RStudio Tensorflow Blog
 - Walk through of training a convolutional neural network to achieve state of the art recognition of activities from accelerometer data.
 - Contracted article.
- 2018 ● **The United States of Seasons⁹**
LiveFreeOrDichotomize.com
 - GIS analysis of weather data to find the most 'seasonal' locations in United States
 - Used Bayesian regression methods for smoothing sparse geospatial data.
- 2017 ● **A year as told by fitbit¹⁰**
LiveFreeOrDichotomize.com
 - Analyzing a full years worth of second-level heart rate data from wearable device.
 - Demonstrated visualization-based inference for large data.
- 2017 ● **MCMC and the case of the spilled seeds¹¹**
LiveFreeOrDichotomize.com
 - Full Bayesian MCMC sampler running in your browser.
 - Coded from scratch in vanilla Javascript.
- 2017 ● **The Traveling Metallurgist¹²**
LiveFreeOrDichotomize.com
 - Pure javascript implementation of traveling salesman solution using simulated annealing.
 - Allows reader to customize the number and location of cities to attempt to trick the algorithm.

SELECTED PRESS (ABOUT)

- 2017
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2017 ● **Great paper? Swipe right on the new 'Tinder for preprints' app¹³**
Science
 - Story of the app Papr¹⁴ made with Jeff Leek and Lucy D'Agostino McGowan.
- 2017
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2017 ● **Swipe right for science: Papr app is 'Tinder for preprints'¹⁵**
Nature News
 - Second press article for app Papr.
- 2016
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2016 ● **The Deeper Story in the Data¹⁶**
University of Vermont Quarterly
 - Story on my path post graduation and the power of narrative.



SELECTED PRESS (BY)

2016
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2016



The Great Student Migration¹⁷

The New York Times

- Most shared and discussed article from the New York Times for August 2016.

2016
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2016



Wildfires are Getting Worse, The New York Times¹⁸

The New York Times

- GIS analysis and modeling of fire patterns and trends
- Data in collaboration with NASA and USGS

2016
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2016



Who's Speaking at the Democratic National Convention?¹⁹

The New York Times

- Data scraped from CSPAN records to figure out who talked and past conventions.

2016
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2016



Who's Speaking at the Republican National Convention?²⁰

The New York Times

- Used same data scraping techniques as Who's Speaking at the Democratic National Convention?

2016
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2016



A Trail of Terror in Nice, Block by Block²¹

The New York Times

- Led research effort to put together story of 2016 terrorist attack in Nice, France in less than 12 hours.
- Work won Silver medal at Malofiej 2017, and gold at Society of News and Design.



SELECTED PUBLICATIONS, POSTERS, AND TALKS

2020



Building a software package in tandem with machine learning methods research can result in both more rigorous code and more rigorous research

ENAR 2020

- Invited talk in Human Data Interaction section.
- How and why building an R package can benefit methodological research

2020



Stochastic Block Modeling in R, Statistically rigorous clustering with rigorous code²²

RStudio::conf 2020

- Invited talk about new sbmR package²³.
- Focus on how software development and methodological research can improve both benefit when done in tandem.

- 2019
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2019
- **Charge Reductions Associated with Shortening Time to Recovery in Septic Shock²⁴**
Chest
 - Authored with Wesley H. Self, MD MPH; Dandan Liu, PhD; Stephan Russ, MD, MPH; Michael J. Ward, MD, PhD, MBA; Nathan I. Shapiro, MD, MPH; Todd W. Rice, MD, MSc; Matthew W. Semler, MD, MSc.
- 2019
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2019
- **Multimorbidity Explorer | A shiny app for exploring EHR and biobank data²⁵**
RStudio::conf 2019
 - Contributed Poster. Authored with Yaomin Xu.
- 2019
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2019
- **Taking a network view of EHR and Biobank data to find explainable multivariate patterns²⁶**
Vanderbilt Biostatistics Seminar Series
 - University wide seminar series.
- 2019
- **Patient-specific risk factors independently influence survival in Myelodysplastic Syndromes in an unbiased review of EHR records**
Under-Review (copy available upon request.)
 - Bayesian network analysis used to find novel subgroups of patients with Myelodysplastic Syndromes (MDS).
 - Analysis done using method built for my dissertation.
- 2019
- **Patient specific comorbidities impact overall survival in myelofibrosis**
Under-Review (copy available upon request.)
 - Bayesian network analysis used to find robust novel subgroups of patients with given genetic mutations.
 - Analysis done using method built for my dissertation.
- 2018
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2018
- **R timelineViz: Visualizing the distribution of study events in longitudinal studies**
Under-Review (copy available upon request.)
 - Authored with Alex Sunderman of the Vanderbilt Department of Epidemiology.
- 2017
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2017
- **Continuous Classification using Deep Neural Networks²⁷**
Vanderbilt Biostatistics Qualification Exam
 - Review of methods for classifying continuous data streams using neural networks
 - Successfully met qualifying examination standards
- 2015
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2015
- **Asymmetric Linkage Disequilibrium: Tools for Dissecting Multiallelic LD**
Journal of Human Immunology
 - Authored with Richard Single, Vanja Paunic, Mark Albrecht, and Martin Maier.

- 2015
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2015
- **An Agent Based Model of Mysis Migration²⁸**
International Association of Great Lakes Research Conference
• Authored with Brian O'Malley, Sture Hansson, and Jason Stockwell.
- 2015
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2015
- **Declines of Mysis diluviana in the Great Lakes**
Journal of Great Lakes Research
• Authored with Peter Euclide and Jason Stockwell.

LINKS

1. <https://www.nytimes.com/interactive/2016/08/26/us/college-student-migration.html>
2. https://livefreeordichotomize.com/2019/06/04/using_awk_and_r_to_parse_25tb/
3. <https://github.com/nstrayer/shinysense>
4. <http://nickstrayer.me/dataDayTexas/>
5. http://nickstrayer.me/js4shiny_r2d3/slides
6. <https://livefreeordichotomize.com/>
7. https://livefreeordichotomize.com/2019/06/04/using_awk_and_r_to_parse_25tb/
8. <https://blogs.rstudio.com/tensorflow/posts/2018-07-17-activity-detection/>
9. <https://livefreeordichotomize.com/2018/02/12/the-united-states-of-seasons/>
10. <https://livefreeordichotomize.com/2017/12/27/a-year-as-told-by-fitbit/>
11. <https://livefreeordichotomize.com/2017/10/14/mcmc-and-the-case-of-the-spilled-seeds/>
12. <https://livefreeordichotomize.com/2017/09/25/the-traveling-metallurgist/>
13. <https://www.sciencemag.org/news/2017/06/great-paper-swipe-right-new-tinder-preprints-app>
14. <https://jhubiostatistics.shinyapps.io/papr/>
15. <https://www.nature.com/news/swipe-right-for-science-papr-app-is-tinder-for-preprints-1.22163>
16. <https://www.uvm.edu/uvmnews/news/deeper-story-data>
17. <https://www.nytimes.com/interactive/2016/08/26/us/college-student-migration.html?smid=pl-share>
18. <https://www.nytimes.com/interactive/2016/07/25/us/wildfire-seasons-los-angeles.html>
19. <https://www.nytimes.com/2016/07/26/upshot/democrats-may-not-be-unified-but-their-convention-speakers-are.html>
20. <https://www.nytimes.com/2016/07/19/upshot/whos-not-speaking-how-this-republican-convention-differs.html?smid=pl-share>
21. <https://www.nytimes.com/interactive/2016/07/14/world/europe/trail-of-terror-france.html>
22. http://nickstrayer.me/rstudioconf_sbm
23. <https://tbilab.github.io/sbmR/>
24. <https://www.ncbi.nlm.nih.gov/pubmed/30419234>
25. http://nickstrayer.me/rstudioconf19_me-poster/
26. http://nickstrayer.me/biostat_seminar/
27. http://nickstrayer.me/qualifying_exam/
28. <https://www.semanticscholar.org/paper/An-Agent-Based-Model-of-the-Diel-Vertical-Migration-Strayer-Stockwell/40493c78e8ecf22bd882d17ec99fd913ec4b9820>