

# JAMES CRANLEY

I have made visualizations viewed by hundreds of thousands of people<sup>1</sup>, sped up query times for 25 terabytes of data by an average of 4,800 times<sup>2</sup>, and built packages for R<sup>3</sup> that let you do magic<sup>4</sup>.



## EDUCATION

2024  
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2021

- **Wellcome Trust Doctoral Fellowship**  
Teichmann Lab 📍 Sanger Institute
  - Single cell and spatial transcriptomic analysis of the adult and developing human heart
  - 50% wet lab edata generatoin (single-cell and spatial transcriptomic), 50% bioinformatics (python, Bash, R)

2019  
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2018

- **PG Certificate in Medical Education**  
Institute of Continuing Education 📍 Cambridge University

## RESEARCH EXPERIENCE

2024  
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2021

- **PhD Fellowship**  
Teichmann Lab 📍 Sanger Institute

2018  
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2018

- **Academic Clinical Fellow pt. 3**  
Munroe Lab 📍 Queen Mary University of London
  - Genome-wide associattion study into ECG trait (PR interval) using UK biobank data

2018  
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2017

- **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 d3js).

2017  
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2017

- **Academic Clinical Fellow pt. 2**  
MacRae Lab 📍 Harvard University
  - Literature review and introduction to zebrafish model

2016  
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2016

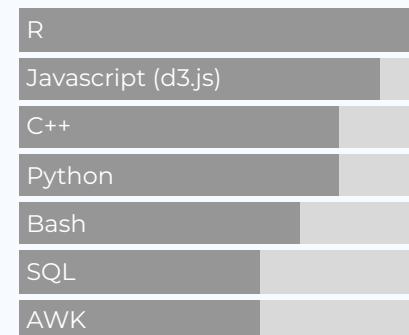
- **Academic Clinical Fellow pt. 1**  
Huang Lab 📍 Cambridge University
  - Patch clamping rodent cardiomyocytes in a model of metabolic syndrome.

View this CV online with links at  
[https://james\\_cranley.github.io/cranley\\_cv.html](https://james_cranley.github.io/cranley_cv.html)

## CONTACT

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linkedin [linkedin.com/in/james-cranley-23347341/](#)

## LANGUAGE SKILLS



Made with the R package  
[pagedown](#).

The source code is available on  
[github.com/hstrayer/cv](https://github.com/hstrayer/cv).

Last updated on 2022-12-26.

2013  
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2012

- **Intercalated BSc**  
Herring Lab 📍 Oxford University
  - Investigating the effect of the neuropeptide Galanin in cardiac autonomics (model: guinea pig Ilangendorff).

Current  
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2020

- **Software Engineer**  
RStudio 📍 Remote
  - Helping make programming web applications with R easier and more beautiful on the Shiny team

NA

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.

## ✉️ TEACHING EXPERIENCE

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 teaching.

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.<sup>6</sup>

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

- **Improving your visualization in Python**

DataCamp

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

2018

- **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

- **Advanced Statistical Computing**

Vanderbilt Biostatistics Department

📍 Nashville, TN

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

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 25tb<sup>8</sup>**

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 regularly blog about data science and visualization on my blog LiveFreeOrDichotomize.<sup>7</sup>

- 2018
- **Classifying physical activity from smartphone data<sup>9</sup>**  
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 Seasons<sup>10</sup>**  
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 fitbit<sup>11</sup>**  
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 seeds<sup>12</sup>**  
LiveFreeOrDichotomize.com
    - Full Bayesian MCMC sampler running in your browser.
    - Coded from scratch in vanilla Javascript.
- 2017
- **The Traveling Metallurgist<sup>13</sup>**  
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 | 2017
- **Great paper? Swipe right on the new ‘Tinder for preprints’ app<sup>14</sup>**  
Science
    - Story of the app Papr<sup>15</sup> made with Jeff Leek and Lucy D’Agostino McGowan.
- 2017 | 2017
- **Swipe right for science: Papr app is ‘Tinder for preprints’<sup>16</sup>**  
Nature News
    - Second press article for app Papr.

2016  
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2016

- **The Deeper Story in the Data<sup>17</sup>**  
University of Vermont Quarterly
  - Story on my path post graduation and the power of narrative.

2016  
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2016

## [selected press (by)]

2016  
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2016

- **The Great Student Migration<sup>18</sup>**  
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 Times<sup>19</sup>**

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?<sup>20</sup>**

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?<sup>21</sup>**

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 Block<sup>22</sup>**

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 code<sup>23</sup>**  
RStudio::conf 2020
    - Invited talk about new sbmR package<sup>24</sup>.
    - Focus on how software development and methodological research can improve both benefit when done in tandem.
- 2020
- **PheWAS-ME: A web-app for interactive exploration of multimorbidity patterns in PheWAS<sup>25</sup>**  
Bioinformatics
    - Manuscript detailing application for the exploration of multimorbidity patterns in PheWAS analyses
    - See landing page<sup>26</sup> for more information.
- 2019  
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2019
- **Charge Reductions Associated with Shortening Time to Recovery in Septic Shock<sup>27</sup>**  
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 data<sup>28</sup>**  
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 patterns<sup>29</sup>**  
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 | 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 | 2017
- **Continuous Classification using Deep Neural Networks<sup>30</sup>**  
Vanderbilt Biostatistics Qualification Exam
    - Review of methods for classifying continuous data streams using neural networks
    - Successfully met qualifying examination standards
- 2015 | 2015
- **Asymmetric Linkage Disequilibrium: Tools for Dissecting Multiallelic LD**  
Journal of Human Immunology
    - Authored with Richard Single, Vanja Paunic, Mark Albrecht, and Martin Maiers.
- 2015 | 2015
- **An Agent Based Model of Mysis Migration<sup>31</sup>**  
International Association of Great Lakes Research Conference
    - Authored with Brian O'Malley, Sture Hansson, and Jason Stockwell.
- 2015 | 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/](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: NA
- 6: [http://nickstrayer.me/js4shiny\\_r2d3/slides](http://nickstrayer.me/js4shiny_r2d3/slides)
- 7: <https://livefreeordichotomize.com/>
- 8: [https://livefreeordichotomize.com/2019/06/04/using\\_awk\\_and\\_r\\_to\\_parse\\_25tb/](https://livefreeordichotomize.com/2019/06/04/using_awk_and_r_to_parse_25tb/)
- 9: <https://blogs.rstudio.com/tensorflow/posts/2018-07-17-activity-detection/>
- 10: <https://livefreeordichotomize.com/2018/02/12/the-united-states-of-seasons/>
- 11: <https://livefreeordichotomize.com/2017/12/27/a-year-as-told-by-fitbit/>
- 12: <https://livefreeordichotomize.com/2017/10/14/mcmc-and-the-case-of-the-spilled-seeds/>
- 13: <https://livefreeordichotomize.com/2017/09/25/the-traveling-metallurgist/>
- 14: <https://www.sciencemag.org/news/2017/06/great-paper-swipe-right-new-tinder-preprints-app>
- 15: <https://jhbiostatistics.shinyapps.io/papr/>

- 16: [https://www.nature.com/news/swipe right for science papr app is tinder for preprints](https://www.nature.com/news/swipe-right-for-science-papr-app-is-tinder-for-preprints) 1.22163
- 17: [https://www.uvm.edu/uvmnews/news/deeper story data](https://www.uvm.edu/uvmnews/news/deeper-story-data)
- 18: [https://www.nytimes.com/interactive/2016/08/26/us/college student migration.html?smid=pl share](https://www.nytimes.com/interactive/2016/08/26/us/college-student-migration.html?smid=pl-share)
- 19: [https://www.nytimes.com/interactive/2016/07/25/us/wildfire seasons los angeles.html](https://www.nytimes.com/interactive/2016/07/25/us/wildfire-seasons-los-angeles.html)
- 20: [https://www.nytimes.com/2016/07/26/upshot/democrats may not be unified but their convention speakers are.html](https://www.nytimes.com/2016/07/26/upshot/democrats-may-not-be-unified-but-their-convention-speakers-are.html)
- 21: [https://www.nytimes.com/2016/07/19/upshot/whos not speaking how this republican convention differs.html?smid=pl share](https://www.nytimes.com/2016/07/19/upshot/whos-not-speaking-how-this-republican-convention-differs.html?smid=pl-share)
- 22: [https://www.nytimes.com/interactive/2016/07/14/world/europe/trail of terror france.html](https://www.nytimes.com/interactive/2016/07/14/world/europe/trail-of-terror-france.html)
- 23: [http://nickstrayer.me/rstudioconf\\_sbm](http://nickstrayer.me/rstudioconf_sbm)
- 24: <https://tbilab.github.io/sbmR/>
- 25: [https://academic.oup.com/bioinformatics/advance article abstract/doi/10.1093/bioinformatics/btaa870/5922817?redirectedFrom=fulltext](https://academic.oup.com/bioinformatics/advance-article-abstract/doi/10.1093/bioinformatics/btaa870/5922817?redirectedFrom=fulltext)
- 26: [https://prod.tbilab.org/phewas\\_me\\_info/](https://prod.tbilab.org/phewas_me_info/)
- 27: <https://www.ncbi.nlm.nih.gov/pubmed/30419234>
- 28: [http://nickstrayer.me/rstudioconf19\\_me\\_poster/](http://nickstrayer.me/rstudioconf19_me_poster/)
- 29: [http://nickstrayer.me/biostat\\_seminar/](http://nickstrayer.me/biostat_seminar/)
- 30: [http://nickstrayer.me/qualifying\\_exam/](http://nickstrayer.me/qualifying_exam/)
- 31: [https://www.semanticscholar.org/paper/An Agent Based Model of the Diel Vertical Migration](https://www.semanticscholar.org/paper/An-Agent-Based-Model-of-the-Diel-Vertical-Migration) Strayer Stockwell /40493c78e8ecf22bd882d17ec99fd913ec4b9820