

# TIMOTHY KEYES

I am a data scientist, bioinformatician, and cancer biologist. In my work, I develop statistical and machine learning algorithms for analyzing high-dimensional single-cell data and predicting clinical outcomes in cancer patients.

I am searching for a position at the intersection of biomedical data science, machine learning, and medicine where I can use data to solve problems relevant to human health.

## EDUCATION

- Current | 2015
- M.D./Ph.D. – Cancer Biology**  
Stanford University 📍 Stanford, CA
    - National Cancer Institute (NCI) National Research Service Award fellow
    - Advisors: Kara Davis and Garry Nolan
- Current | 2020
- M.S. – Biomedical Informatics (concurrent with M.D./Ph.D.)**  
Stanford University 📍 Stanford, CA
- 2014 | 2010
- B.A. – Psychology and Computational Neuroscience**  
Princeton University 📍 Princeton, NJ
    - Summa cum laude
    - GPA: 3.99

## SELECT EMPLOYMENT

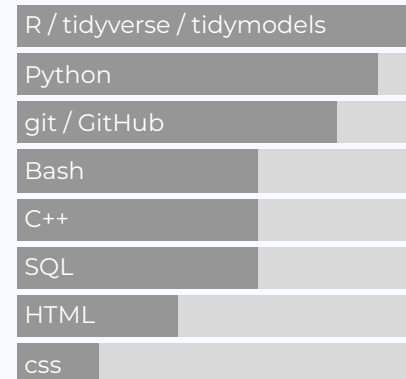
- Current | 2022
- Data Science Mentor – Posit Academy**  
Posit, PBC (formerly RStudio, PBC) 📍 Stanford, CA
    - Leading group-based instruction and one-on-one mentoring for Posit Academy cohorts learning R and Python
    - Engaging in regular professional development programming with experienced data science educators
- 2022
- Graduate Intern – Oncology Bioinformatics, gRED**  
Genentech, Inc 📍 South San Francisco, CA
    - Codeveloped a novel algorithm for detecting transcription factor network perturbations in cancer using Bayesian network modeling
    - Automated a multiomic data integration pipeline for ATAC- and RNA-seq

## SELECT PUBLICATIONS

- 2023
- {tidytof}: A user-friendly framework for scalable and reproducible high-dimensional cytometry data analysis.**  
[Bioinformatics Advances](#)
    - Keyes TJ, Koladiya A, Lo YC, Nolan GP, Davis KL.
    - Project website: <https://keyes-timothy.github.io/tidytof/>
- 2022
- CytofIn enables Integrated Analysis of Public Mass Cytometry Datasets using Generalized Anchors**  
[Nature Communications](#)
    - Lo YC, Keyes TJ, Jager A, Sarno J, Domizi P, Majeti R, Sakamoto KM, Lacayo N, Mulligan CG, Waters J, Sahaf B, Bendall SC, Davis KL
- 2020
- A cancer biologist's primer on machine learning applications in high-dimensional cytometry**  
[Cytometry](#)
    - Keyes TJ, Domizi P, Lo YC, Nolan GP, and Davis KL

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🐦 [@timothykeyes](https://twitter.com/timothykeyes)  
📁 [keyes-timothy](https://github.com/keyes-timothy)  
🌐 [keyes-timothy.github.io](https://keyes-timothy.github.io)  
in [timothy-keyes](https://timothy-keyes.com)

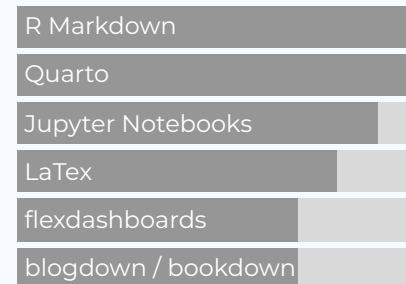
## PROGRAMMING



## DATA ANALYSIS

Exploratory data analysis  
Data visualization (e.g. ggplot2)  
Data cleaning (e.g. dplyr, pandas)  
Deep Learning (Keras, TF)  
Machine learning (e.g. Factor Analysis, GLMs, SVMs, Tree-based models)

## LITERATE CODING



Resume generated in R with  
[pagedown](#)




Source code:  
[github.com/keyes-timothy/cv](https://github.com/keyes-timothy/cv)

Updated August 16, 2023.






## OPEN-SOURCE SOFTWARE


- **tidytof: A user-friendly framework for interactive and highly reproducible cytometry data analysis**  
 (Role: Author, Maintainer)  
 · An R package for analyzing high-dimensional cytometry data using the tidyverse
- **MARX: A novel algorithm for detecting cancer-specific single-cell features**  
 (Role: Author, Maintainer)  
 · An R package that implements Matrix factorization and Residual Expression (MARX), an algorithm for comparing high-dimensional biological measurements to a lower-dimensional reference linear subspace
- **CytofIn: An R package for CyTOF data integration**  
 (Role: Contributor)  
 · An R package for homogenizing and normalizing heterogeneous mass cytometry (CyTOF) data from diverse data sources



## LEADERSHIP

Current  
|  
2018

- **Co-founder - Executive Board**  
[Medical Student Pride Alliance](#), 501(c)(3)  Birmingham, AL  
 · Co-founded national non-profit organization advocating for LGBTQ+ medical students  
 · Led Research & Analytics division, resulting in multiple publications

- **Awards**  
 Stanford University School of Medicine  Stanford, CA  
 · American Society of Hematology (ASH) Abstract Achievement Award (2022)  
 · rstudio::global(2021) Diversity Scholarship (2021)  
 · Point Foundation Graduate Student Scholarship (2020)  
 · National Cancer Institute Ruth L. Kirschstein Pre-doctoral National Research Service Award (2019)

2021  
|  
2017

- **Teaching**  
 Stanford University School of Medicine  Stanford, CA  
 · R for Data Science (2021)  
 · Immunology in Health and Disease (2017-2019)



## GRANTS

2024  
|  
2021

- **Deep Neural Network Prediction of Relapse in Pediatric Acute Leukemia**  
[The Mark Foundation for Cancer Research](#) (ASPIRE II Award); \$750,000

2023  
|  
2018

- **Computational Approaches to Predicting Post-treatment Relapse in Pediatric Acute Myeloid Leukemia**  
[The Andrew McDonough B+ \(Be Positive\) Foundation](#); \$150,000



## REFERENCES

- **Kara Davis, DO**  
 Stanford University School of Medicine (PhD Co-advisor)  
 · email: [kardavis@stanford.edu](mailto:kardavis@stanford.edu)
- **Garry Nolan, PhD**  
 Stanford University School of Medicine (PhD Co-advisor)  
 · email: [gnolan@stanford.edu](mailto:gnolan@stanford.edu)