

Cody Carroll

Curriculum Vitae

✉ cjcarroll@usfca.edu
codycarroll.github.io
linkedin.com/in/cody-j-carroll

Academic Appointments and Professional Experience

- 2022 - present **Assistant Professor**, *Department of Mathematics and Statistics / Master's in Data Science Program, University of San Francisco*
- 2022 **Lecturer**, *Department of Statistics, University of California, Davis*
- 2021 - 2022 **Data Scientist**, *Wells Fargo, Charlotte, NC.*

Education

- 2021 **PhD in Statistics**, *University of California, Davis*
Dissertation Title: Intercomponent Time Dynamics for Multivariate Functional Data
Advisor: Hans-Georg Müller
- 2017 **MS in Statistics**, *University of California, Davis*
- 2014 **BS in Mathematics**, *University of Texas at Austin*

Research Interests

Functional and longitudinal data analysis– longitudinal studies; growth, development, and aging across the human lifespan

Conservation, citizen science, and wildlife– bird migration; data validity; conservation technology and remote sensing in service of biodiversity protection and environmental stewardship

Statistical modeling of healthcare data– improving diagnosis and care for patients with vision and hearing loss; statistical and computational tools for clinical research

Teaching

University of San Francisco

Term	Courses	
Spring '26	Advanced Machine Learning	Linear Algebra for Data Science
Fall '25	Linear Regression Analysis	
Spring '25	Advanced Machine Learning	Linear Algebra for Data Science
Fall '24	Linear Regression Analysis	
Spring '24	Statistics with Applications	Intro to Data Science with R
	Linear Algebra for Data Science	
Fall '23	Linear Regression	Intro to Data Science with R
Spring '23	Advanced Machine Learning	Linear Algebra for Data Science
Fall '22	Machine Learning Laboratory	Communications for Analytics

University of California, Davis

Term	Course
Spring '22	Applied Statistics for Business and Economics
Summer '19	Brief Course in Mathematical Statistics II
Spring '19	Applied Statistics for Biological Sciences
Summer '18	Applied Statistics for Business and Economics

International Experience

2014-2015 ESL Teacher, *Nishinomiya Imazu Senior High School*, Nishinomiya, Japan

Publications and other Creative Works

*indicates authors contributed equally

†indicates a student under mentorship

Google Scholar: <https://scholar.google.com/citations?hl=en&user=EY7x1lYAAAAJ>

- 2026 *A Longitudinal Analysis of the Clinical Practice of Ketamine-Assisted Psychotherapy with Adolescents and Young Adults*
P. Wolfson*, **C. Carroll***. *Frontiers in Psychiatry* (in press).
- 2026 *Improving Conservation Efficiency: Accelerating Groundwater Sustainability Plan Reviews Using Large Language Models*
R. Bernstein†, S. Waterman†, K. Klausmeyer, N. Murphy, M. M. Rohde, **C. Carroll**. *Environmental Challenges*.
- 2026 *The Token Tax: Systematic Bias in Multilingual Tokenization*
J.M. Lundin, A. Zhang†, N. Karim†, H. Louzan†, V. Wei†, D. Adelani, **C. Carroll**,
European Chapter of Association for Computational Linguistics, AfricaNLP 2026 Workshop.
- 2026 *An Open-Source Deep Learning-Based Toolbox for Automated Auditory Brainstem Response Analyses (ABRA)*
A. Erra*†, C. Miller*, J. Chen*†, E. Chrysostomou, S. Barret, Y. M. Kassim, R. A. Friedman, A. Lauer, F. Ceriani, W. Marcotti, **C. Carroll**, U. Manor, *Scientific Reports*.
- 2025 *Predicting Progressive Vision Loss in Glaucoma Patients Using Functional Principal Component Analysis and Electronic Health Records*
R. K. Donnipadu†, M. Sivoilella†, **C. Carroll**, S. Y. Wang. *Frontiers in Ophthalmology*.
- 2025 *Comparative Embryology and Transcriptomics of Asellus infernus, an Isopod Crustacean From Sulfidic Groundwater*
H. Lomheim, L. Reyes Rodas, D. Price, S. M. Sarbu, R. I. Băncilă, **C. Carroll**, L. Freeborn, S. Sanders, M. E. Protas. *Evolution and Development*.
- 2025 *Consistency and Validity of Participatory Science Data: A Comparison of Seasonality Patterns of Northern California & Nevada Birds across eBird and iNaturalist*
C. Carroll, R. E. Furrow, L. M. Gerhart, *Citizen Science: Theory and Practice*.
- 2023 *Latent Deformation Models for Multivariate Functional Data and Time Warping Separability*
C. Carroll and H.-G. Müller. *Biometrics*.
- 2022 *Learning Delay Dynamics for Multivariate Stochastic Processes, with Application to the Prediction of the Growth Rate of COVID-19 Cases in the United States*
P. Dubey, Y. Chen*, Á. Gajardo*, S. Bhattacharjee*, **C. Carroll***, Y. Zhou*, H. Chen*, H.-G. Müller. *Journal of Mathematical Analysis and Applications*.
- 2022 *Comparison of Diagnostic Predictors of Neonatal Survivability in Non-Domestic Caprinae*
T. N. Bliss, M. J. Marinkovich, R. E. Burns, **C. Carroll**, M. M. Clancy, L. L. Howard. *Journal of Zoo and Wildlife Medicine*.

- 2021 *Cross-component Registration for Multivariate Functional Data with Application to Growth Curves*
C. Carroll, H.-G. Müller, A. Kneip, *Biometrics*.
- 2021 *A Practical Method to Quantify Knowledge-Based Dose Volume Histogram Prediction Accuracy and Uncertainty with Reference Cohorts*
 B. Covele, **C. Carroll**, K. Moore, *Journal of Applied Clinical Medical Physics*.
- 2020 *Time Dynamics of COVID-19*
C. Carroll, S. Bhattacharjee*, Y. Chen*, P. Dubey*, J. Fan*, Á. Gajardo*, X. Zhou*, H.-G. Müller, J.-L. Wang, *Scientific Reports*.
- 2020 *Mountaineers on Mount Everest: effects of age, sex, experience, and crowding on rates of success and death*
 R. B. Huey*, **C. Carroll***, R. Salisbury, J.-L. Wang, *PLoS One*.

Whitepapers

- 2026 *No Text Needed: Forecasting MT Quality and Inequity from Fertility and Metadata*
 J.M. Lundin, A. Zhang[†], D. Adelani, **C. Carroll**
- 2026 *Bias Evaluation and Correction of Heat Index Forecasts Using Climate Observations in California*
 A. Klaus[†], F. Chiang, **C. Carroll**. Office of Environmental Health Hazard Assessment (OEHHA).
- 2026 *An Automated Sea Urchin Counting Pipeline for Kelp Forest Restoration Monitoring*
 A. Lobo*[†], J. Li*[†], A. Taylor, B. Grime, K. Klausmeyer, **C. Carroll**. The Nature Conservancy.
- 2023 *An Automated Workflow for Satellite-based Monitoring of Field Flooding*
 X. Wang*[†], W.-C. Liao*[†], K. Klausmeyer, N. Rindlaub, **C. Carroll**. The Nature Conservancy.

Software

- Maintainer *NorCal Bird Dash*.
C. Carroll, A. Zhang[†], S. Waterman[†].
<https://birds-dash-547zxc6ea-uc.a.run.app>.
- Contributor / Former Maintainer *fdapace: Functional Data Analysis and Empirical Dynamics. R package*.
C. Carroll, A. Gajardo, Y. Chen, X. Dai, J. Fan, P. Z. Hadjipantelis, K. Han, et al.
<https://CRAN.R-project.org/package=fdapace>.
- Contributor *Automatic Auditory Brainstem Response Analyzer (ABRA)*.
C. Carroll, A. Erra[†]
 Website: <https://abra.ucsd.com/>.
 Github: <https://github.com/ucsdmanorlab/abranalysis>.

Podcasts and Media

- 2022 - present *The USF Data Science Podcast*, co-host with Robert Clements.
<https://open.spotify.com/show/5SY1TPw3FubdSxCqrXUKZv?si=71427ced6f9a434f>.

Student Mentorship and Advising

- 2022 - present Data Science Practicum, *Data Institute, USF*
 Advising Master's Practicums and Research

Year	Student(s)	Partner Organization	Co-mentor(s)
2025–26	Ernesto Diaz, Amelia Klaus	CA Office of Env. Health Hazard Assessment	Scott Coffin, Felicia Chiang
	Borna Karimi, Neel Deshmukh, Andrew Lim, Lokesh Muvva	UCSF Radiation Oncology	Hui Lin, J.-P. Coppé
	Vu Chu-Le, Tianyi Luo	Manor Lab, UC San Diego	Uri Manor
	John Hutchens	Capra Lab, UCSF Epidemiology & Biostatistics	Tony Capra

(continued)

Year	Student(s)	Partner Organization	Co-mentor(s)
	Jianing (Ari) Li, Aatish Lobo	The Nature Conservancy	Annie Taylor, Kirk Klausmeyer
	Shiman Zhang, Sai Mulagan	Dept. of Ophthalmology, Stanford Medicine	Sophia Ying Wang
2024–25	Amit Chaubey, Emma Salazar	Dept. of Ophthalmology, Stanford Medicine	Sophia Ying Wang
	KD Bartholomew, Aman Singh	The Nature Conservancy	Kirk Klausmeyer
	Leah Ashebir, Peeyush Patel	Manor Lab, UC San Diego	Uri Manor
	Ada Zhang, Hamza Louzan, Victor Wei, Nihal Karim	Gates Foundation	Jessica Lundin
	Helen Lin, Kavin Indirajith	CA Office of Env. Health Hazard Assessment	Scott Coffin
	Andrea Quiroz, Jose Fuentes	UCSF Clinical Informatics	Hui Lin
2023–24	Rithvik Donnipadu, Maxim Sivolella	Dept. of Ophthalmology, Stanford Medicine	Sophia Ying Wang
	Seneth Waterman, Ryan Bernstein	The Nature Conservancy	Kirk Klausmeyer
	Abhijeeth Erra, Jeffrey Chen	Manor Lab, UC San Diego	Uri Manor
2022–23	Devendra Govil, Vichitra Kumar	Dept. of Ophthalmology, Stanford Medicine	Sophia Ying Wang
	Xinyi Jessica Wang, Wan-Chun Elena Liao	The Nature Conservancy	Kirk Klausmeyer
	Mohana Medisetty, Yu-Hsin Wang	Salk Institute for Biological Studies	Uri Manor
	Xin Ai, Sharon Dodda	CA Dept. of Fisheries and Wildlife	Alex Heeren, Brett Furnas

2017-2020 NSF Research Training Group, *Dept. of Statistics, UC Davis*

Advising Undergraduate Research

- o *Warping methods for wearable device data*, with Hainiu Xu
- o *Functional regression for wearable device data*, with Phoebe Biying Li
- o *Functional clustering for wearable device data*, with Weiyi Chen
- o *Geographic trends for functional housing price data*, with Yunbai Zhang
- o *Functional data analysis of global temperature extrema*, with Cynthia Lai

2020 Mentor for Undergraduate Honors Thesis

Warping methods for wearable device data, by Hainiu Xu

Presentations

Invited Talks and Panels

- 2026 European Citizen Science Association Conference, *Oulu, Finland*
Validating and Integrating Biodiversity Seasonality Pattern Data Across Citizen Science Platforms Using Circular Optimal Transport
- 2025 Quantitative Seminar, *UC Davis, Dept. of Psychology*
When and How Functional Data Analysis Can Help in Quantitative Psychology
- 2025 Math Colloquium, *USF*
To Merge or Not to Merge? A Comparison of Seasonality Patterns of Northern California and Nevada Birds across eBird and iNaturalist
- 2025 Department of Mathematics and Statistics, *Sonoma State University*
To Merge or Not to Merge? A Comparison of Seasonality Patterns of Northern California and Nevada Birds across eBird and iNaturalist

- 2025 STEM Teaching Symposium, *USF*
Data Science Here and Now
- 2024 STEM Teaching Symposium, *USF*
Data Science Here and Now
- 2024 Data + AI Summit, *San Francisco, CA*
Databricks' University Alliance Faculty Advice Panel
- 2023 Joint Statistical Meetings, *Toronto, ON, CA*
Latent Transport Models for Multivariate Functional Data
- 2023 Math Colloquium, *USF*
Time Warping and Functional Data
- 2022 Department of Mathematics and Computer Science, *Cal Poly Humboldt*
Mixed-Effect Warping Models for Multivariate Human Growth Curves
- 2022 Department of Mathematics and Computer Science, *Cal Poly Humboldt*
Case Study in Data Science Pedagogy: k-Nearest Neighbors Regression
- 2022 Halicioğlu Data Science Institute, *UC San Diego*
Latent Transport Models for Multivariate Functional Data
- 2022 Halicioğlu Data Science Institute, *UC San Diego*
Case Study in Data Science Pedagogy: k-Nearest Neighbors Regression
- 2022 Department of Mathematics and Statistics, *San Diego State University*
Intercomponent Time Dynamics for Multivariate Functional Data
- 2022 Department of Mathematics and Statistics, *USF*
Nonparametric Regression on Mt. Everest
- 2022 Data Institute, *USF*
Intercomponent Time Dynamics for Multivariate Functional Data
- 2022 Department of Probability and Applied Statistics, *UC Santa Barbara*
Teaching Statistics Here and Now
- 2022 Department of Statistics, *UC Berkeley*
Case Study in Data Science Pedagogy: Linear Association and Correlation
- 2021 Department of Applied Statistics, *Lawrence Livermore National Lab*
Latent Transport Models for Multivariate Functional Data
- 2020 ECHO Lab, *Bill and Melinda Gates Foundation*
Longitudinal Data Analysis with fdapace
- 2020 Department of Statistics, *UC Davis*
Shift-Warping for Multivariate Functional Data
- 2019 NSF RTG Statistics Workshop Series, *UC Davis*
Deception and Coin Flips: Statistical Intuition through Lies and Games
- 2018 NSF RTG Symposium: Modern Tools for Statistics, *UC Davis*
A Practical Introduction to Functional Data Analysis
- 2018 Department of Statistics, *UC Davis*
Time Warping for Human Growth Curves

Posters

- 2026 *Network-Informed Functional Kinase Activity Profiling in a BRAF-Mutant Colorectal Cancer Patient-Derived Xenograft Model*
B. Karimi[†], H. Lin, **C. Carroll**, J.-P. Coppé. American Society for Radiation Oncology (ASTRO) Annual Meeting, 2026.

- 2026 *Teaching Taichi as Participatory Arts in Multilingual Communities for Healthy Aging and Wellness*
E. Y. Ho, S. Pak, J. Lu, J. Leung, A. Gent[†], **C. Carroll**, G. Leung, et al. International Conference on Communication in Healthcare (ICCH), Belfast, Northern Ireland, 2026.
- 2026 *Gentle Movement, Lasting Health: Taichi for Holistic Aging*
A. M. Li, Y. Zhong, N. Ha, . . . , A. Gent[†], **C. Carroll**, G. Leung, E. Y. Ho. Creative Activity and Research Day, USF, 2026.
- 2026 *Benchmarking Protein Language Model Embeddings for Kinase-Substrate Link Prediction*
N. Deshmukh[†], H. Lin, J.-P. Coppé, **C. Carroll**. Creative Activity and Research Day, USF, 2026.
- 2026 *Predicting Glaucoma Progression with a Variable-Time Neural Controlled Differential Equation*
S. Mulagan[†], S. Y. Wang, **C. Carroll**. Creative Activity and Research Day, USF, 2026.
- 2026 *Automated Sea Urchin Detection and Tracking for Kelp Forest Restoration Monitoring*
J. Li^{*†}, A. Lobo^{*†}, A. Taylor, B. Grime, K. Klausmeyer, **C. Carroll**. USF MSDSAI Practicum Showcase, 2026.
- 2026 *Low Resource Languages Pay Twice: Quantifying the High- vs. Low-Resource Language Gap in Predicting Large Language Model Accuracy through Tokenization Fertility and Parity*
J. M. Lundin, A. Zhang[†], N. Karim[†], H. Louzan[†], V. Wei[†], D. Adelani, **C. Carroll**. European Chapter of Association for Computational Linguistics, AfricaNLP 2026 Workshop.
- 2025 *To Merge or Not to Merge? A Circular Optimal Transport-Based Framework for Comparing and Fusing Seasonality Pattern Data across Participatory Science Platforms, with Application to eBird and iNaturalist*
C. Carroll, R. E. Furrow, L. M. Gerhart. International Society for Ecological Modeling (ISEM) Global Conference, Tokyo, Japan, 2025.
- 2025 *Long-Term Spatial Prediction of Glaucomatous Visual Field Loss*
A. Chaubey[†], E. Salazar[†], **C. Carroll**, S. Y. Wang. Creative Activity and Research Day, USF, 2025.
- 2025 *Low Resource Languages Pay Twice: Quantifying the High- vs. Low-Resource Language Gap in Predicting Large Language Model Accuracy through Tokenization Fertility and Parity*
J. M. Lundin, A. Zhang[†], N. Karim[†], H. Louzan[†], V. Wei[†], D. Adelani, **C. Carroll**. Creative Activity and Research Day, USF, 2025.
- 2025 *FlowZero: Leveraging Satellite Imagery for Proactive Water Management*
KD Bartholomew[†], A. Singh[†], **C. Carroll**, K. Klausmeyer. Creative Activity and Research Day, USF, 2025.
- 2024 *Predicting Progressive Vision Loss in Glaucoma Patients Using Functional Principal Component Analysis and Electronic Health Records*
R. K. Donnipadu[†], M. Sivoilella[†], **C. Carroll**, S. Y. Wang. American Medical Informatics Association (AMIA) Symposium; and Creative Activity and Research Day, USF, 2024.
- 2024 *Automated Analysis for Auditory Brainstem Responses (ABRs) in Mice*
J. Chen[†], A. Erra[†], **C. Carroll**. Creative Activity and Research Day, USF, 2024.
- 2024 *Chat GDE: Can Large Language Models Evaluate Sustainability Plans for Groundwater Dependent Ecosystems?*
R. Bernstein[†], S. Waterman[†], K. Klausmeyer, **C. Carroll**. Creative Activity and Research Day, USF, 2024.
- 2023 *An Automated Workflow for Satellite-based Monitoring of Field Flooding*
X. Wang^{*†}, W.-C. Liao^{*†}, K. Klausmeyer, N. Rindlaub, **C. Carroll**. Creative Activity and Research Day, USF, 2023.
- 2020 *Benchmarking Dose-Volume Histogram Prediction Accuracy Between Different Knowledge-Based Models*
B. Covele, **C. Carroll**, K. Moore. Joint AAPM/COMP Meeting, Vancouver, BC, Canada, 2020.

Professional Service

Leadership and Administration

- 2025 - present **Director**, *Leveraging Data for Environmental and Social Impact (LEDESI) Initiative*, Data Institute, USF
- 2023 - present **Co-Lead**, *Data Institute + Center for Research, Artistic, and Scholarly Excellence (CRASE) Research Support Initiative*, USF
- 2025 - present **Member**, *Student Research and Creative Activity Advisory Council*, College of Arts and Sciences, USF
- 2024 - present **Math/MSDSAI Liaison**, *for Strategic Enrollment Management Events*, USF

University and Departmental

- 2025-2026
- o BSDS/MSDS and Math/MSDS 3+1 program development and proposal
 - o Reviewed and interviewed prospective MSDS students
 - o Mock interview MSDS students for job hunting
- 2024-2025
- o Wrote and led BSDS Minor proposal to successful adoption
 - o Co-Lead Peer2Peer Presentation - Gradescope: An Assessment Tool to Help Streamline and Automate the Grading Process
 - o Presenter at USF CAS' STEM Teaching Symposium
 - o Reviewed and interviewed prospective MSDS students
 - o Mock interview MSDS students for job hunting
 - o Invited and hosted speakers for Math Colloquium Series
- 2023-2024
- o New faculty orientation panel
 - o Math/MSDS representative at the Meet USF recruitment event
 - o Math/MSDS representative for USF visit to NASA Ames Facility
 - o Major/Minor Fair representative for Math dept
 - o Transfer Student Meet and Greet representative for Math dept
 - o Reviewed and interviewed prospective MSDS students
- 2022-2023
- o Major/Minor Fair representative for Math dept
 - o Association for Women in Mathematics Integration Bee judge
 - o Machine learning consultant for KNIME platform
 - o MSDS faculty search interview panel
 - o Reviewed and interviewed prospective MSDS students
 - o Organized and hosted weekly Job Hunt Seminar for MSDS advisees

Public Engagement

- 2022 - present **Co-host**, *The USF Data Science Podcast*, with Robert Clements
Publicly accessible podcast aimed at student and early career data scientists.
<https://open.spotify.com/show/5SY1TPw3FubdSxCqrXUKZv?si=71427ced6f9a434f>.

Editorial Review

- o Annals of Statistics
- o Journal of the American Statistical Association
- o Scientific Reports
- o Biometrika

- Computational Statistics and Data Analysis
- Multivariate Behavioral Research
- Computer Methods and Programs in Biomedicine
- Statistics in Medicine

--- Awards and Fellowships

- 2026 CRASE Interdisciplinary Action Group Grant, *Building Sustainable, Interdisciplinary Analytics Infrastructure for USF*
with Shan Wang, Lis Merkel, USF
- 2025 Centennial Innovation Fund Award, *Preparing our Next Generation of Data Science Students*
with James Wilson, Daniel Jerison, Stephen Devlin, USF
- 2025 Early Career Researcher Award, *Best Poster*
International Society for Ecological Modeling Global Conference
- 2025 Faculty Development Fund Award, *Functional Data for Citizen Science: Analysis of Northern CA Bird Seasonality Patterns*
USF
- 2025 Faculty Development Fund Award, *Google Cloud Platform for Hosting NorCal Birds Dash*
USF
- 2024 CARD Outstanding Poster Award
with Ryan Bernstein and Seneth Waterman, USF
- 2024 Faculty Development Fund Award, *Travel Award, Mid-Winter Meeting of the Association for Research in Otolaryngology*
USF
- 2023 Faculty Development Fund Award, *Large Language Models for Conservation of California Wildlife*
USF
- 2023 Faculty Development Fund Award, *Travel Award, Joint Statistical Meetings*
USF
- 2022 Faculty Development Fund Award, *Functional Data for Citizen Science*
USF
- 2021 Peter Hall Graduate Research Award
Dept. of Statistics, UC Davis
- 2021 Alan Fenech Service Award
Dept. of Statistics, UC Davis
- 2020 Outstanding Graduate Teaching Award
Graduate Studies, UC Davis
- 2020 Excellence in Teaching Award
Dept. of Statistics, UC Davis
- 2015-2020 NSF Research Training Grant Recipient
UC Davis
- 2016-2019 Summer Statistical Research Fellowship
Dept. of Statistics, UC Davis
- 2015-2018 UC Davis Graduate Scholars Fellowship
Graduate Studies, UC Davis
- 2015 *Kizuna Ambassador Award*
Japanese Ministry of Internal Affairs and Communications

———— Languages

Programming R, Python, SQL, $\LaTeX$

Spoken English (native), Japanese (proficient), Spanish (conversational), French (basic)