

# Cody Carroll

## Curriculum Vitae

Department of Statistics  
University of California, Davis  
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[codycarroll.github.io](https://codycarroll.github.io)

### Education

- 2021 **PhD in Statistics**, *University of California, Davis*.  
(expected) Advisor: Hans-Georg Müller
- 2017 **MS in Statistics**, *University of California, Davis*.
- 2014 **BS in Mathematics**, *University of Texas, Austin*.

### Research Interests

**Functional and longitudinal data analysis**— time dynamics of multivariate functional data; constrained functional data analysis; imputation; analysis of random objects

### Publications and Preprints

<sup>1</sup>*co-first authorship*  
<sup>2</sup>*co-second authorship*

#### Published/In Press

- 2020 *Cross-component Registration for Multivariate Functional Data, with Application to Growth Curves*  
**C. Carroll**, H.-G. Müller, and A. Kneip, *Biometrics* 2020, [doi.org/10.1111/biom.13340](https://doi.org/10.1111/biom.13340).
- 2020 *Mountaineers in an extreme environment: an update on effects of age and sex on rates of success and death on Mount Everest*  
R. B. Huey<sup>1</sup>, **C. Carroll**<sup>1</sup>, R. Salisbury, J.-L. Wang, *PLoS One* 2020, [doi.org/10.1371/journal.pone.0236919](https://doi.org/10.1371/journal.pone.0236919).  
— received media coverage from *The Economist*, *Reuters*, & *The London Times*
- 2020+ *Time-Dynamics of COVID-19*  
**C. Carroll**, S. Bhattacharjee, Y. Chen, P. Dubey, J. Fan, A. Gajardo, X. Zhou, H.-G. Müller, J.-L. Wang, *Scientific Reports (in press)* 2020.

#### Under Review

- 2020+ *Benchmarking Dose-Volume Histogram Prediction Accuracy Between Different Knowledge-Based Models*  
B. Covele, **C. Carroll**, K. Moore
- 2020+ *Learning Delay Dynamics for Multivariate Stochastic Processes, With Application to Predicting COVID-19 Case Trajectories in the United States*,  
P. Dubey, Y. Chen<sup>2</sup>, A. Gajardo<sup>2</sup>, S. Bhattacharjee<sup>2</sup>, **C. Carroll**<sup>2</sup>, H. Chen<sup>2</sup>, Y. Zhou<sup>2</sup>, and H.-G. Müller

- 2020+ *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, and L. L. Howard.

#### Ongoing Projects

- 2020+ *Modeling Positive-Valued Multivariate Functional Data with Cross-Component Transports*  
**C. Carroll**, H.-G. Müller

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### Software

- 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>.

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### Presentations

#### Talks

- 2020 **Statistics Student-Led Seminar Series, 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.**  
An Introduction to Functional Data Analysis
- 2018 **Statistics Student-Led Seminar Series, UC Davis.**  
Time Warping for Human Growth Curves

#### Posters

- 2020 **Joint AAPM/COMP Meeting, Benchmarking Dose-Volume Histogram Prediction Accuracy Between Different Knowledge-Based Models**, Vancouver, BC, Canada

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### Teaching

#### Instructor of Record

- Summer 2019 **Brief Course in Mathematical Statistics II.**  
UC Davis, Dept. of Statistics
- Spring 2019 **Applied Statistics for Biological Sciences.**  
UC Davis, Dept. of Statistics
- Summer 2018 **Applied Statistics for Business and Economics.**  
UC Davis, Dept. of Statistics/Dept. of Economics

#### Teaching Assistant

- *Applied Statistics for Biological Sciences* (Su17) UCD, Statistics
- *Applied Statistics for Business and Economics* (F19) UCD, Statistics/Economics
- *Applied Statistical Methods Regression Analysis* (F17) UCD, Statistics
- *Introduction to Probability Theory* (S18) UCD, Statistics

- *Survival Analysis* (F18) UCD, Statistics/Biostatistics, *Grad. Level*
- *Statistical Consulting* (W18, W19, W20) UCD, Statistics/Biostatistics, *Grad. Level*

#### International Teaching

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

### Mentoring Experience

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

- *Warping methods for wearable device data*, with Hainiu Xu
- *Functional regression for wearable device data*, with Phoebe Biying Li
- *Functional clustering for wearable device data*, with Weiyi Chen
- *Geographic trends for functional housing price data*, with Yunbai Zhang
- *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

### Awards and Fellowships

2020 **Outstanding Graduate Teaching Award.**

Awarded to 10 graduate students university-wide, *Grad. Studies, UC Davis*

2020 **Excellence in Teaching Award.**

Awarded to one student instructor in the department on special occasion, *Dept. of Statistics, UC Davis*

2015-2020 **NSF Research Training Grant Recipient.**

2016-2019 **Summer Statistics Research Fellowship Award.**

*Dept. of Statistics, UC Davis*

2017-2019 **TA Recognition Award.**

*Dept. of Statistics, UC Davis*

2015-2018 **UC Davis Graduate Scholars Fellowship.**

*Grad. Studies, UC Davis*

### Service and Leadership

UC Davis

- Graduate Student Representative, Dept. of Statistics

Reviewer

- *Annals of Statistics*
- *Journal of the American Statistical Association*
- *Computational Statistics and Data Analysis*

## Technical skills

Advanced R,  $\LaTeX$ , git  
Intermediate SQL, Python, Julia, Travis-CI