

# Peter David Smits

ph: 609-933-7042; add: 1661 Hopkins St, Berkeley, CA 94707

peterdavidsmits@gmail.com

<https://psmits.github.io/>

## Experience

- **University of California – Berkeley** Berkeley, CA  
*Postdoctoral Scholar* *Sept 2017 – present*
  - Executed multiple projects about predicting when rare events (e.g. extinctions) are likely to be clustered
  - Developed a discrete-time survival model for predicting extinction from highly structured data
  - Used results from this survival model to estimate the accuracy of predicting future extinction events
  - Analyzed how sedimentological composition predicts the occurrence of rare events (e.g. fossils) using a time-series mixture model
  - Taught graduate level course on applied statistics, Bayesian modeling, and network analysis using R and Stan
  - Elected to University of California Postdoctoral Union Joint Council as Recording Secretary for UC Berkeley
- **University of Chicago** Chicago, IL  
*Doctoral Researcher* *Sept 2012 – June 2017*
  - Completed dissertation on Bayesian modeling of multi-level variation in species duration with incomplete observation
  - Analyzed cohort-structured survival data using a multi-level model accounting for multiple forms of nonindependence in the observations
  - Developed a hidden Markov model of species duration and their occurrences over time with incomplete observation probability
  - Mentored and taught graduate and undergraduate students in statistics, Stan, R, and pedagogy
- **Monash University** Melbourne, AUS  
*Postgraduate Researcher* *Sept 2010 – Aug 2012*
  - Developed thesis on the relationship between tooth shape and jaw movement in carnivorous mammals
  - Used three-dimensional scans of mammal skulls to reconstruct jaw movement
  - Used R to analyze relationship among biomechanical measurements
  - Demonstrated for undergraduate course on introduction to data analysis and R

## Education

- **University of Chicago** Chicago, IL  
*Ph.D. in Evolutionary Biology* *Sept 2012 – June 2017*
- **Monash University** Melbourne, AUS  
*M.Sc. in Biological Sciences* *Sept 2010 – Aug 2012*
  - Vice-Chancellor's Commendation for Master's Thesis Excellence
- **University of Washington** Seattle, WA  
*B.S. in Biology – Ecology and Evolution* *Sept 2006 – June 2010*

## Technical Skills

**Statistical/Analytical:** Bayesian data analysis, multilevel/hierarchical/mixed-effects models, generalized linear models, time-series analysis, survival analysis, longitudinal and cross-sectional data analysis, discrete-time hidden Markov models, network analysis/graph theory, exploratory data analysis, clustering and classification, machine learning (e.g. random forests), measurement error/missing data, variable selection, etc.

**Technologies:** R (caret, devtools, ggplot2, knitr, igraph, parallel, tidyverse, shiny), Stan, JAGS, L<sup>A</sup>T<sub>E</sub>X, git/github, bash/Linux command line

**Other:** near-fluency French, dual US–Australian citizen, radio experience