Peter David Smits

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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 using Stan to predict probability of species 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
- **University of Chicago** — Chicago, IL
  Doctoral Researcher — *Sept 2012 – June 2017*
  - Completed dissertation on Bayesian modeling of 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 occurrence over time
  - 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-dimenstional 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/mixed-effects models, generalized linear models, time-series analysis, survival analysis, longitudinal and cross-sectional data analysis, hidden Markov models, network analysis/graph theory, exploratory data analysis, clustering, classification, machine learning (e.g. random forests), measurement error/missing data, variable selection, etc.

Technologies: R (caret, ggplot2, knitr, igraph, tidyverse, shiny), Stan, JAGS, LaTeX, git/github, bash/Linux command line

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