

Alexander T. Xue

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POSITIONS

- Computational Postdoctoral Fellow; Simons Center for Quantitative Biology, Cold Spring Harbor Laboratory; Supervisor: Adam C. Siepel; 2018-Present
- Post-Doctoral Associate; Human Genetics Institute of New Jersey and Department of Genetics, Rutgers University; Supervisor: Andrew D. Kern; 2017-2018

EDUCATION

- Ph.D. in Biology (Ecology, Evolutionary Biology, and Behavior); Graduate Center and City College of the City University of New York; Advisor: Michael J. Hickerson; 2012-2017
- M.S. for Teachers in Adolescent Education; Pace University; Advisor: James F. Kilbane; 2009-2011
- B.S. in Conservation and Resource Studies; University of California, Berkeley; Advisor: Jeffrey L. Boore; 2005-2007

PUBLICATIONS

- **Xue AT**, Ruggiero RP, Hickerson MJ, Boissinot S. 2018. *Differential effect of selection against LINE retrotransposons among vertebrates inferred from whole-genome data and demographic modeling*. *Genome Biology and Evolution*. 10(5), 1265-1281.
- Potter S, **Xue AT**, Bragg JG, Rosauer DF, Roycroft EJ, Moritz C. 2018. *Pleistocene climatic changes drive diversification across a tropical savanna*. *Molecular Ecology*. 27(2), 520-532.
- Mastretta-Yanes A, **Xue AT**, Moreno-Letelier A, Jorgensen TH, Alvarez N, Piñero D, Emerson BC. 2018. *Long-term in situ persistence of biodiversity in tropical sky islands revealed by landscape genomics*. *Molecular Ecology*. 27(2), 432-448.
- **Xue AT**, Hickerson MJ. 2017. *Multi-DICE: R package for comparative population genomic inference under hierarchical co-demographic models of independent single-population size changes*. *Molecular Ecology Resources*. 17(6), e212-e224.
- Prates I, **Xue AT**, Brown JL, Alvarado-Serrano DF, Rodrigues MT, Hickerson MJ, Carnaval AC. 2016. *Inferring responses to climate dynamics from historical demography in neotropical forest lizards*. *Proceedings of the National Academy of Sciences*. 113(29), 7978-7985.
- Harris SE, **Xue AT**, Alvarado-Serrano D, Boehm JT, Joseph T, Hickerson MJ, Munshi-South J. 2016. *Urbanization shapes the demographic history of a native rodent (the white-footed mouse, *Peromyscus leucopus*) in New York City*. *Biology Letters*. 12(4), 20150983.
- **Xue AT**, Hickerson MJ. 2015. *The aggregate site frequency spectrum for comparative population genomic inference*. *Molecular Ecology*. 24(24), 6223-6240.

PUBLICATIONS IN PROGRESS

- **Xue AT**, Hickerson MJ. *In revision. Comparative phylogeographic and genomic inference of co-distributed population-pairs.*
- **Xue AT**, Schrider DR, Kern AD, Ag1000G Consortium. *In preparation. Discovery of ongoing selective sweeps within Anopheles mosquito populations using deep learning.*
- Myers EA, **Xue AT**, Gehara M, Cox C, Davis Rabosky AR, Lemos-Espinal J, Martínez-Gómez JE, Burbrink FT. *In preparation. Environmental heterogeneity and not biogeographic barriers generate community wide population structure in desert adapted snakes.*
- Thom G, **Xue AT**, Johnson O, Ribas C, Hickerson MJ, Aleixo A, Miyaki C. *In preparation. New tales for the Amazonian biogeography: Overlooked floodplain forest birds support climatic oscillation in the Quaternary as driver of speciation in the Amazon Floodplains.*
- Myers EA^(co-1st), **Xue AT**^(co-1st), Burbrink FT. *In preparation. Multiple early co-expansion pulses in co-distributed snake populations following western North America aridification detected with comparative population genomics.*

SOFTWARE PACKAGES

- **Xue AT**, Schrider DR, Kern AD. *partialS/HIC: Python software for detecting selective sweeps, including partial hard sweeps and partial soft sweeps.*
- **Xue AT**. *Multi-DICE: R package for constructing hierarchical co-demographic models and simulating multi-taxa summary statistic vectors.*

INVITED PRESENTATIONS

- **Xue AT**. 2018. *Comparative population genomic inference: detecting partial selective sweeps with deep learning and hierarchical co-demographic modeling.* Seminar at Cold Spring Harbor Laboratory.
- **Xue AT**. 2018. *Comparative population genomic inference: hierarchical co-demographic models and detecting partial selective sweeps.* Seminar at Temple University.
- **Xue AT**. 2016. *Comparative phylogeographic and population genomic inference under hierarchical models.* Seminar at Harvard University.
- **Xue AT**, Hickerson MJ. 2015. *Novel method for next-generation comparative phylogeography and population genomics.* Atlantic Forest Dimensions of Biodiversity Meeting.
- **Xue AT**. 2014. *What can we do with our personal genomic data?* National Geographic and American Museum of Natural History New York City Student Ancestry Event.

CONTRIBUTED PRESENTATIONS

- **Xue AT**, Schrider DR, Kern AD. 2018. *Probing the genomic signatures of insecticide resistance in the malaria vector Anopheles gambiae via deep learning.* GSA Population, Evolutionary, and Quantitative Genetics Conference. (Poster)
- **Xue AT**, Hickerson MJ. 2016. *Comparative phylogeographic and population genomic inference under hierarchical multi-taxa co-divergence models.* Evolution Meeting.

- **Xue AT**, Hickerson MJ. 2015. *Novel method for next-generation comparative phylogeography and population genomics*. Evolution Meeting.
- **Xue AT**, Hickerson MJ. 2015. *New method for demographic inference of comparative population genomic data*. New York Area Population Genomics Workshop.
- **Xue AT**, Hickerson MJ. 2014. *The multi-species allele frequency spectrum (msAFS) for next-generation comparative phylogeography*. Evolution Meeting.
- **Xue AT**, Hickerson MJ. 2014. *Using the multi-species allele frequency spectrum (AFS) for community-level demographic inference*. International Biogeography Society Early Career Conference.
- **Xue AT**, Hickerson MJ. 2013. *Detecting melting pots and hotspots among Australian communities*. Software and Statistical Methods for Population Genetics. (Poster)

AWARDS, GRANTS, AND FELLOWSHIPS

- City University of New York Science Scholarship; Tuition and Stipend; 2012-2017
- Segal AmeriCorps Education Award; \$4,725 toward educational expenses; 2009-2010
- New York City Teaching Fellowship; Tuition and Salary; 2009-2011

TEACHING EXPERIENCE – WORKSHOPS

- Demographic modeling and population genomic inference; University of Texas, Arlington; Spring 2017
- Model-based demographic inference using sub-genomic data for comparative phylogeography; University of Adelaide; Fall 2015
- Model-based statistical inference of demographic histories for comparative phylogeographic purposes using Next-Generation Sequencing data; Australian National University; Fall 2015

TEACHING EXPERIENCE – COURSES

- Biological Foundations II; City College of the City University of New York; Fall 2016 (2 sections), Spring 2015, Fall 2014
- Evolution (Guest Lecture); Graduate Center of the City University of New York; Fall 2015
- Statistical Inference in Phylogeography (Guest Lecture); Graduate Center of the City University of New York; Fall 2014
- Anthropological Genomics; City College of the City University of New York; Spring 2014
- Licensed and Certified Secondary School Teacher; New York City Department of Education: Frederick Douglass Academy, International High School at Prospect Heights; 2009-2011
 - Special education mathematics and special education science (middle school); biology, ELL (English Language Learners) science, and English (high school)

POPULAR PRESS

- BreakThru Radio. 2014. *Finding Human Identity Through Genomics - Identity Week*. <http://www.breakthru radio.com/#!/post/?blog=72&post=36017>.

STUDENTS MENTORED

- Malouf, Georgio; Undergraduate (City College of the City University of New York); 2015-2017

GRANT PROPOSALS REVIEW

- *The Great Lakes Fishery Commission*

PEER REVIEW

- *Methods in Ecology and Evolution*
- *Systematic Biology*
- *TREE*
- *Molecular Ecology*
- *PLOS ONE* (3)