

XIN CHEN PhD

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STATUS: permanent resident (Green card holder)

SUMMARY

Highly motivated and innovative computational biologist with specialization in biostatistics, mathematical modeling, bioinformatics, evolution, genomics, microbiology, zoology. Expertise in designing pipelines to process high-through sequencing data for phylogenomics, metagenomics and developing models and statistical methods to answer evolutionary questions. Passionate about getting new ideas and learning new skills. Self educated in programming, database, graphic design. Effective communicator and teacher that can conceptualize complex information to audiences with varied background. Strong team spirit and management skills. Experienced in managing multiple projects with different collaborators simultaneously.

EXPERIENCE

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| Current-Mar, 2015 | Postdoctoral Research Associate, Dartmouth College, US I am working on projects of microbe social behaviors and epigenetics using computational tools in Dr. Zhaxybayeva's lab. I developed mathematical models to interpret the interactions between gene transfer agents (GTAs), a phage-like element, and the host bacteria. I built a pipeline to process the metagenomic dataset and to investigate the environmental DNAs uptake behaviors in Halophile communities. I examined the genome-wide methylation and gene expression patterns to understand the thermal adaptation of thermotogae bacteria. I also mentored the undergraduate and graduate students. |
| Dec, 2014-Sep, 2009 | Graduate Assistant (PhD program), Graduate Center, CUNY, US I led a phylogenomic project and developed a pipeline to infer the phylogeny using high-through sequencing data. I performed macroevolution, biogeography, phylogeny, phylogeography, population genetics, geometric morphometric studies in multiple amphibian and reptile groups. I also did molecular biology wet lab work including DNA extraction, PCR, Sanger sequencing. |
| Dec, 2014-Sep, 2009 | Adjunct lecturer, College of Staten Island, CUNY, US I taught General Biology Lab (Bio 171), Introduction Biology Lab (Bio 107), Evolution (Bio 322) and tutored General biology. |
| Sep, 2003-Aug, 2009 | Sichuan University, China I performed molecular biology lab work including bacterial culture, gene clone, accomplished a geometric study project and participated multiple field survey projects. |

EDUCATION

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| Sep, 2009-Dec, 2014 | PhD, The City University of New York, NY Program: Biology Major: Computational Biology Thesis: Integrating phylogenomics, biogeography and systematics to explore the taxonomy and the rise of the ratsnakes Advisor: Dr. Frank T. Burbrink |
| June, 2013 | NSF Next-generation Sequencing Data for Phylogenetics and Phylogeography workshop at NESCent, Durham, NC |
| June, 2012 | NSF Macroevolutionary methods in R workshop, Santa Barbara, CA |
| 2006-2009 | Master of Science, Sichuan University, China Major: Zoology Thesis: The Anatomy of Mountain Stream Hynobiid (<i>Batrachuperus pinchonii</i>) Advisor: Professor Ermi Zhao |
| 2002-2006 | Bachelor of Science, Sichuan University, China Major: Biotechnology Lab internship: Cloning and function identification of anti-ultraviolet radiation and DNA repairing enzyme genes in <i>Dunaliella salina</i> Supervisor: Dr. Yi Cao |

SKILLS

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| Biology | biostatistics, bioinformatics, population genetics, genetics, molecular biology, genomics, evolution, ecology, microbiology, zoology |
| Computer | R, Python, MySQL, C++, JavaScript, Perl, Java, circos, D3, regular expression, Unix/Linux (bash, awk), \LaTeX , markdown, Microsoft Office, Adobe Photoshop, Adobe Illustrator |
| Math and Statistics | calculus, linear algebra, geometry, statistics, probability, mathematical modeling (deterministic, stochastic), machine learning |
| Languages | English, Chinese |
| Teaching | Syllabus construction, lecturing |

PUBLICATIONS

Yuan, Z., W. Zhou, **X. Chen**^{*}, N.A. Poyarkov Jr., H. Chen, N. Jang-Liaw, W. Chou, N. J. Matzke, K. Iizuka, M. Min, S.L. Kuzmin, Y. Zhang, D.C. Cannatella, D.M. Hillis, J. Che. (2016) Spatiotemporal Diversification of the True Frogs (Genus *Rana*): An Historical Framework for a Widely Studied Group of Model Organisms. (under review)

^{*}equal first author

Xin Chen, Alan R. Lemmon, Emily Moriarty Lemmon, R. Alexander Pyron, Frank T. Burbrink. (2016) Comparing Methods for Estimating the Phylogeny of Ratsnakes from Phylogenomic Data. (under review)

Peng, G., Q. Liu, F. Zhu; G. Zhong, **X. Chen**, E.A. Myers, L. Zhang, T. Ziegler, T. Nguyen, F. T. Burbrink. 2016. Molecular phylogeography reveals west-east diversification in Stejneger's pitviper *Viridovipera stejnegeri* (Schmidt, 1925) (Reptilia: Serpentes: Viperidae). *Molecular Ecology*. (accepted)

Fei Zhu, Qin Liu, Liang Zhang, **Xin Chen**, Fang Yan, Robert Murphy, Cong Guo, Peng Guo. (2016) Molecular phylogeography of white-lipped tree viper (*Trimeresurus albolabris*): A joint influence from heterogeneous habitat and inter-glacial expansion, *Zoologica Scripta*. (in press)

Kai He, Nai-Qing Hu, **Xin Chen**, Jia-Tang Li and Xue-Long Jiang. (2016) Interglacial refugia preserved high genetic diversity of the Chinese mole shrew in the mountains of southwest China. *Heredity*, 116, 23-32.

Eliana F. Oliveira, Marcelo Gehara, Vinicius A. S o Pedro, **Xin Chen**, Edward A. Myers, Frank T. Burbrink, Daniel O. Mesquita, Adrian A. Garda, Guarino R. Colli, Miguel T. Rodrigues, Federico J. Arias, Hussam Zaher, Rodrigo M. L. Santos and Gabriel C. Costa. (2015) Speciation with gene flow in whiptail lizards from a Neotropical xeric biome. *Molecular Ecology*, 24, 5957-5975.

Chen, X., A. D. McKelvy, L. L. Grismer, M. Matsui, K. Nishikawa and F. T. Burbrink. (2014) The phylogenetic position and taxonomic status of the Rainbow Tree Snake *Gonyophis margaritatus* (Peters, 1871) (Squamata: colubridae). *Zootaxa* 3881, 532-548.

Chen, X., Jiang, K., Guo, P., Huang, S., Rao, D., Ding, L., Takeuchi, H., Che, J., Zhang, Y., Myers, E. A. and F.T, Burbrink. (2014) Assessing species boundaries and the phylogenetic position of the rare Szechwan ratsnake, *Euprepophis perlaceus* (Serpentes: Colubridae), using coalescent-based methods. *Molecular Phylogenetics and Evolution*, 70, 130-136.

Chen, X., Huang, S., Guo, P., Colli, G.R., Nieto Montes de Oca, A., Vitt, L.J., Pyron, R.A. and Burbrink, F.T. (2013) Understanding the formation of ancient intertropical disjunct distributions using asian and neotropical hinged-teeth snakes (*Sibynophis* and *Scaphiodontophis*: Serpentes: Colubridae). *Molecular Phylogenetics and Evolution*, 66, 254-261.

Burbrink, F.T., **Chen, X.**, Myers, E.A., Brandley, M.C. and Pyron, R.A. (2012) Evidence for determinism in species diversification and contingency in phenotypic evolution during adaptive radiation. *Proceedings of the Royal Society B: Biological Sciences*, 279, 4817-4826.

Song Huang, Li Ding, Frank T. Burbrink, Jun Yang, Jietang Huang, Chen Lin, **Xin Chen**, Yaping Zhang. (2012) A New Species of the Genus *Elaphe* (Squamata: Colubridae) from Zoige County, Sichuan, China. *Asian Herpetological Research*. 3, 38-45.

Guo, P., C. Li, A. Malhotra, Q. Liu, **X. Chen**, K. Jiang, Y. Wang. (2011) Molecular Phylogeography of Jerdon's Pit Viper *Protobothrops jerdonii* (Günther, 1875): Importance of the Tibetan Plateau Uplift. *Journal of Biogeography*. 38, 2326-2336.

Wu, Y. K., Y. Z. Wang, K. Jiang, **X. Chen**, J. Hanken. (2009) Homoplastic Evolution of External Coloration in Asian Stout Newts (*Pachytriton*) Inferred from Molecular Phylogeny. *Zoologica Scripta*, 39, 9-22.

Chen, X., H. Chen, E. M. Zhao. (2009) Anatomy of Head Muscles of *Batrachuperus*

pinchonii. Sichuan Journal of Zoology, Sichuan. Vol. 28 No. 3: 417-421.

Chen, X., H. Chen, E. M. Zhao. (2009) Anatomy of the Digestive and Respiratory Systems of *Batrachuperus pinchonii*. Sichuan Journal of Zoology, Sichuan. Vol.28 No. 4: 565-568.

Chen, X., E. M. Zhao. (2007) Research on Lepidosis Variation of *Sphenomorphus indicus*. Sichuan Journal of Zoology, Sichuan. Vol. 26 No. 2: 392-394.

PRESENTATIONS

Chen, X., O. Zhaxybayeva. (Feb 2016) Could gene transfer agent still be a selfish genetic element? Microbiology and Molecular Pathogenesis Program (M2P2) Retreat, Dartmouth College.

Burbrink, F.T., **X. Chen**. (Aug 2015) Estimating species tree phylogenies from 100s of loci and predicting community structure of snakes on eastern Nearctic islands. Society for the Study of Amphibians and Reptiles 2015 University of Kansas Meeting.

Irene Feng, **Xin Chen**, Olga Zhaxybayeva. (May 2015) Bacterial DNA modification in response to temperature fluctuations. The 24th Annual Karen E. Wetterhahn Science Research Symposium, Dartmouth College, Hanover, NH.

Chen, X., F.T. Burbrink. (June 2014) Exploring the origins and diversification of ratsnakes using anchored hybrid enrichment to generate 100s of loci for species tree estimation. The Evolution 2014 Conference, Raleigh, NC.

Xin Chen. (Aug 2013) The Causes of Replicated Adaptive Radiations in Ratesnakes. Invited talk, Chengdu Institute of Biology, Chinese Academy of Sciences, Chengdu, China.

Chen, X., F.T. Burbrink. (Aug 2012) Processes of morphological and ecological trait diversification in globally distributed ratsnakes. World Congress of Herpetology, Vancouver, Canada.

Chen, X., F.T. Burbrink. (June 2011) Patterns of Morphological and Ecological Evolution in Rapidly Diversifying Ratsnakes Across the Globe. The Evolution 2011 Conference, Norman, Oklahoma.

Chen, X., F.T. Burbrink. (Aug 2010) Patterns of Diversification in Old World Ratsnakes. Doctoral Science Student Orientation 2010, Graduate Center, The City College of New York.

Chen, X., F.T. Burbrink. (July 2010) Patterns of Diversification in Old World Ratsnakes. Joint Meeting of Ichthyologists and Herpetologists, Providence, Rhode Island.

Chen, X., E.M. Zhao. (Nov 2008) Anatomy of the Skeletal System of *Batrachuperus pinchonii* (David, 1871[1872]) (Caudata: Hynobiidae). Conference on Conservation and Captive Breeding of Chinese Amphibians and Reptiles, Hainan, China.

GRANTS AND AWARDS

2013-2014 CUNY Graduate Center Doctoral Student Research Grant (\$1200)

2012 NSF Macroevolutionary Methods in R Workshop, Santa Barbara, CA (full funding to attend)

2010-2011 CUNY Graduate Center Doctoral Student Research Grant (\$1500)

2012 CUNY Graduate Center Student Travel Grant (\$300)

2009-2014 Science Fellowship, CUNY Graduate Center (\$24,000/year)

2006-2007 Sichuan University, China, Excellent graduate student scholarship I

2004-2005 Sichuan University, China, Excellent study undergraduate scholarship I

2003 Sichuan University, China, Excellent study undergraduate scholarship III

REVIEWER EXPERIENCE

Italian Journal of Zoology

Sichuan Journal of Zoology

Zoological Research

EXTRACURRICULAR ACTIVITIES

volunteer during 2002-2009 in Sichuan University Environmental Student Association, Conservation International, WWF, Jane Goodall's Roots and Shoots, Chengdu Bird Watching Society

wildlife survey

reading, programming, bird watching, photography, jogging, hiking, biking