

Sungsik Kong

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Academic Appointments

2023 **Postdoctoral Scholar**
Department of Electrical and Computer Engineering
University of California San Diego
PI: Dr. Siavash Mir Arabbayi

Education

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|--------------|--------------|--|---------------------------|
| 2018–Present | Ph.D. | Evolution, Ecology, and Organismal Biology (EEOB) Presidential Fellowship Awardee Advisor: Dr. Laura Kubatko | The Ohio State University |
| 2015 | M.Sc. | Ecology and Evolutionary Biology (EEB) Advisor: Dr. Robert Murphy | University of Toronto |
| 2012 | B.Sc. | Ecology and Evolutionary Biology and Zoology Advisors: Drs. Deborah McLennan and Robert Murphy | University of Toronto |

Publications

Manuscripts in Progress

6. Peng J, **Kong S**, and Kubatko LS. (In Preparation) A likelihood ratio test for hybridization under the multispecies coalescent.
5. Fonseca EM, Camurugi F, Magalhães FM, **Kong S**, Colli GR, Werneck FP, and Carstens BC. (In Preparation) Geographic distance, rivers, and historical climate explain genetic structure and differentiation in a widely distributed lizard in South America.
4. **Kong S**, Swofford DL, and Kubatko LS. (In Preparation) Inference of phylogenetic networks from sequence data using composite likelihood.
3. Fu M, Eimes JA, **Kong S**, Lamichhaney S, and Waldman B. (In Review) Chytrid-resistant genotypes arise from multiple mutations.
2. **Kong S**, Sánchez-Pacheco SJ, and Murphy RW. (In Review) Topological incongruence between median-joining networks and Bayesian inference phylogenies. Available on *bioRxiv* 10.1101/2022.10.01.510440

1. Glon H, Häussermann V, Brewin P, Brickle P, **Kong S**, Smith M, and Daly M. (In Review) There and back again: The unexpected journeys of *Metridium* de Blainville, 1824 between the old oceans and throughout the modern world.

Peer-reviewed Journal Articles

[‡]Co-correspondence; [†]Equal contribution

15. Nguyen HQ, Ho P-T, **Kong S**, Bae Y, Pham TH, and Jang Y. (In Press) A time-calibrated mitogenomic phylogeny suggests that Korean *Hyalessa fuscata* is a bridge between Chinese and Japanese *H. maculaticollis*. *Journal of Genetics* 101
14. **Kong S** (2022) Digest: Frequent hybridization in *Darevskia* rarely leads to the evolution of asexuality. *Evolution* 76:9 2216–2217 doi: 10.1111/evo.14587
13. Nguyen HQ, Kim E, Bae Y, Chae S, Ji S, Heo J, **Kong S**, Nguyen TK, Pham TH, and Jang Y. (2022) An effective method for accurate life-stage delimitation of cicadas. *Journal of Asia-Pacific Entomology* 101952 doi: 10.1016/j.aspen.2022.101952
 - Featured in Donga Science magazine (Korean), 2022 Issue 15, pp. 16–23
12. **Kong S**[†], Pons JC[†], Kubatko LS, and Wicke K. (2022) Classes of phylogenetic networks and their mathematical and biological significance. *Journal of Mathematical Biology* 84:47 doi: 10.1007/s00285-022-01746-y
11. Glon MG, Broe MB, Crandall KA, Daly M, **Kong S**, Thoma RF, and Freudenstein JV. (2022) Anchored hybrid enrichment resolves the *Lacunicambarus* (Decapoda: Cambaridae) phylogeny. *Journal of Crustacean Biology* 42:1 ruab073 doi: 10.1093/jcbiol/ruab073
10. **Kong S** and Kubatko LS. (2021) Comparative performance of popular methods for hybrid detection using genomic data. *Systematic Biology* 70:5 891–907 doi: 10.1093/sysbio/syaa092
9. Sánchez-Pacheco SJ[‡], **Kong S**[†], Pulido-Santacruz P, Murphy RW, and Kubatko L. (2020) Median-joining network analysis of SARS-CoV-2 genomes is neither phylogenetic nor evolutionary. *Proc. Natl. Acad. Sci. U.S.A* 117:23 12518–12519 doi: 10.1073/pnas.2007062117
 - In the 98th percentile of all research outputs tracked by Altmetric (as of August 2022)
 - Scoring higher Altmetric Attention Score than 97% of all research outputs of similar age
8. Kim M, Nguyen HQ, Yi Y, Ahn J, Kim YE, Jang S, Kim S, **Kong S**, and Borzée A. (2020) Policy recommendation on whaling, trade and watching of cetaceans in the Republic of Korea. *Biodiversity Journal* 11: 255–258 doi: <https://doi.org/10.31396/Biodiv.Jour.2020.11.1.255.258>
7. Weiringa JG, Boot MR, Dantas-Queiroz MV, Duckett D, Fonseca EM, Glon H, Hamilton N, **Kong S**, Lanna FM, Mattingly KZ, Parsons DJ, Smith ML, Stone BW, Thompson C, Zuo L, and Carstens BC. (2020) Does habitat stability structure intraspecific genetic diversity? It’s complicated... *Frontiers in Biogeography* e45377 doi:10.21425/F5FBG45377
6. Borzée A, Purevdorj Z, Kim YI, **Kong S**, Choe M, Yi Y, Kim K, Kim A, and Jang Y. (2020) Breeding preferences in the Treefrogs *Dryophytes japonicus* (Hylidae) in Mongolia, the northern limit of their range. *Journal of Natural History* 53: 2685–2698 doi:10.1080/00222933.2019.1704458
5. Groffen J, **Kong S**, Jang Y, and Borzée A. (2019) The invasive American bullfrog (*Lithobates catesbeianus*) in the Republic of Korea: history and recommendation for population control. *Management of Biological Invasions* 10:3 517–535 doi: 10.3391/mbi.2019.10.3.08

4. Bae Y, **Kong S**, Yi Y, Jang Y, and Borzée A. (2019) Additional new type of threat to *Hynobius* salamander eggs: predation by loaches (*Misgurnus* sp.) in agricultural wetlands. *Animal Biology* 69:4 451–461 doi: 10.1163/15707563-20191070
3. Borzée A, **Kong S**, Didinger C, Nguyen HQ, and Jang Y. (2018) A ring-species or a ring of species? Phylogenetic relationship between two treefrog species around the Yellow Sea: *Dryophytes suweonensis* and *D. immaculatus*. *The Herpetological Journal* 28: 160–170
2. Kim K, **Kong S**, Kim YI, Borzée A, Bae Y, and Jang Y. (2018) Japanese hard ticks (*Ixodes nipponensis*) parasitizing on the endangered leopard cat (*Prionailurus bengalensis euptilura*) in the Republic of Korea. *Animal Systematics, Evolution and Diversity* 34:1 23–26 doi: 10.5635/ASED.2018.34.1.032
1. **Kong S**[†], Sánchez-Pacheco S[†], and Murphy RW. (2016) On the use of Median-Joining Networks in evolutionary biology. *Cladistics* 32: 691–699 doi: 10.1111/cla.12147

Policy Recommendations

1. Borzée A, Nguyen HQ, Ahn J, Kim M, Kim S, Jang S, **Kong S**, Kim YE, and Yi Y. (2017) Policy recommendation on the negative impact of infrastructure development on the population of endangered Long-Tailed Goral in Oseck-Kkeutchong. *Society for Conservation Biology Korean Chapter*

Other Writings for a Popular Audience

2. **Kong S** (2019) The giving tree: how the branching pattern of a tree is used in evolutionary biology. Available on <http://eeobcourseblogwolfestudents.blogspot.com/2019/11/the-giving-tree-how-branching-pattern.html>
1. **Kong S** and Fonseca EM. (2019) So far and yet so similar: Convergent evolution in helicopter damselflies. Available on <https://sungsko.github.io/posts/2019/01/blog-post-1/>

Presentations

Invited Talks

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| 2022 | Algorithms and Complexity in Phylogenetics, virtual |
| 2022 | Indiana University, Bloomington, IN., USA |
| 2022 | University of California San Diego, CA., USA, virtual |
| 2022 | Society of Systematic Biologists (SSB) Mayr award competition, Evolution, Cleveland, OH., USA |
| 2022 | Louisiana State University, Baton Rouge, LA., USA |
| 2021, 2022 | EEOB Recruitment Speed Talk, The Ohio State University, OH., USA, virtual |
| 2021 | Annual Conference of the Korean Association of Biological Sciences, Seoul, South Korea, virtual |
| 2021 | Workshop in Mathematical and Computational Biology, virtual |
| 2021 | Misericordia University, PA., USA, virtual |
| 2019 | The Stone Laboratory, Gibraltar Island, OH., USA |
| 2013, 2016 | Ewha Womans University, Seoul, South Korea |

Regular Talks

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| 2021 | Evolution, virtual |
| 2021 | EEOB Annual Darwin Series, The Ohio State University, OH., USA, virtual |
| 2019, 2020 | Evolution & Ecology (E&E) Club, The Ohio State University, OH., USA |
| 2020 | SSB Standalone Meeting, Gainesville, FL., USA |

2017 Animal Communication Symposium, Ewha Womans University, Seoul, South Korea

Posters

2022 **[Best Poster Award Winner]** Intelligent Systems for Molecular Biology (ISMB), the International Society for Computational Biology (ISCB), Madison, WI., USA
2019 Evolution, Providence, RI., USA
2019 EEOB Recruitment Weekend, The Ohio State University, OH., USA
2017 Annual Conference of the Korean Association of Biological Sciences, Yong-In, South Korea
2014 Korean-American Scientists and Engineers Association Young Generation Technical and Leadership Conference, Houston, TX., USA
2012 University of Toronto EEB Undergraduate Research Fair, Toronto, ON., Canada

Additional Academic Experiences

Academic Service

2019–Present **Journal reviewer for:** *Systematic Biology*; *Molecular Biology and Evolution*; *Genome Biology and Evolution*; *Frontiers of Biogeography*; *Infection, Genetics and Evolution*; *PeerJ*
2015–Present **Society Memberships:** SSB; Society for Study of Evolution (SSE); ISCB
2020–2021 **Graduate Studies Committee** Department of EEOB, The Ohio State University, OH., USA
2019–2020 **Admissions Committee** Department of EEOB, The Ohio State University, OH., USA
2016–2017 **Communication Officer** Society for Conservation Biology (SCB), Korean Chapter

Work Experience

2022 **Visiting Scholar** University of Wisconsin (PI: Claudia Solís-Lemus), Madison, WI., USA
2022 **Visiting Scholar** Louisiana State University (PI: Dr. Jeremy Brown), Baton Rouge, LA., USA
2018–2021 **Graduate Associate** The Ohio State University, OH., USA
2016–2017 **Researcher** Ewha Womans University, Division of Eco-science, Seoul, South Korea
2013–2015 **Graduate Associate** University of Toronto, ON., Canada
2013 **Researcher** Ewha Womans University, Division of Eco-science, Seoul, South Korea
2011–2013 **Biodiversity Technician** Faculty of Forestry, University of Toronto, ON., Canada
2012 **Student Researcher** Centre for Biodiversity and Conservation Biology, Royal Ontario Museum, Toronto, ON., Canada
2011–2012 **Student Researcher** McLennan Laboratory, University of Toronto, Toronto, ON., Canada
2011 **Work-Study Student** Faculty of Forestry, University of Toronto, ON., Canada

Fieldwork Experience

2017 Field expeditions to South Korea, Mongolia, and China (Resulted in publications #4, 5, and 6)
2016 Field expeditions to Indonesia, Laos, and South Korea (Resulted in publication #2)
2011–2013 Fieldwork in Greater Toronto Area (GTA), Urban Biodiversity and Forestry Laboratory, University of Toronto, Canada
2010 Fieldwork in GTA, Cities Centre, University of Toronto, Canada

Undergraduate Students Advising

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| 2020 Summer | Shelby Jansens and Kimberly Wiles, co-advised with Dr. Laura Kubatko, Mathematical Biosciences Institute Research Experiences for Undergraduates program. “Detecting shifts in the evolutionary process in SARS-CoV-2 genomes” |
| 2014–2015 | Tulio Soares and Ellen Southam, co-advised with Dr. Pedro Bernardo, University of Toronto and Royal Ontario Museum |
| 2014 Summer | Shreeram Senthivasan, co-advised with Drs. Pedro Bernardo, Santiago Sánchez-Pacheco, and Robert Murphy, University of Toronto and Royal Ontario Museum |

Conference/Workshop Participation

Bolds state particular role in the event; participant if unstated.

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| 2022 | Technical Moderator ISMB, ISCB, Madison, WI., USA |
| 2022 | Evolution Meeting, Cleveland, OH., USA |
| 2022 | Symposium Organizer (co-organized with Md Rejuan Haque) Towards the network of life: Phylogenetic networks as a tool to understand complex evolutionary histories, Evolution Meeting, Cleveland, OH., USA |
| 2022 | Workshop in Mathematical and Computational Biology, virtual |
| 2021 | Annual Conference of the Korean Association of Biological Sciences, Ewha Womans University, South Korea, virtual |
| 2021 | iEvoBio, Evolution Meeting, virtual |
| 2021 | Chair/Moderator in multiple Faux-Live Sessions, Evolution Meeting, virtual |
| 2021 | Workshop in Mathematical and Computational Biology, virtual |
| 2021 | SMRT Leiden 2021 – Young Investigator Virtual Conference, hosted by Pacific Biosciences and Leiden University Medical Center, virtual |
| 2021 | Preparing Future Faculty Zoom Workshop, Workshop #1: From Graduate School to Full Professor: The Road Less Traveled, The Ohio State University, virtual |
| 2021 | Virtual Asilomar 2021, American Society of Naturalists, virtual |
| 2020 | Future of Systematics Workshop, SSB Meeting, funded by NSF, hosted by Dr. Emily Sessa, University of Florida, Gainesville, FL., USA |
| 2020 | SSB Standalone Meeting, Gainesville, FL., USA |
| 2019 | Evolution Meeting, Providence, RI., USA |
| 2019 | Midwest Phylogenetics Workshop, Itasca Biological Station, funded by NSF, hosted by Dr. Emma Goldberg, University of Minnesota, MN., USA |
| 2017 | Annual Conference of the Korean Association of Biological Sciences, Yong-In, South Korea |
| 2017 | SCB Asia Section Workshop on Conservation policy, funded by SCB, Bangkok, Thailand |
| 2016 | World Congress of Herpetology, Hangzhou and Tonglu, China |
| 2015 | Phylogenomics Symposium and Software School, funded by NSF, hosted by Dr. Tandy Warnow, University of Illinois at Urbana-Champaign and University of Michigan, Ann Arbor, MI., USA |
| 2015 | SSB Standalone Meeting, University of Michigan, Ann Arbor, MI., USA |

Diversity and Inclusion Activities

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| 2022 | International Mixer, Evolution Meeting, Cleveland, OH., USA |
| 2021 | Moderator International Mixer, Evolution Meeting, virtual |
| 2021 | Moderator Decolonizing Evolution Workshop, Evolution Meeting, virtual |
| 2021 | Transformative Justice within Academia: A radical institutional reflection, The Centre for Criminology and Sociolegal Studies Graduate Student Conference, University of Toronto, virtual |

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| 2020 | Moderator Strategies for Responding to Harassment and Bullying: Improving Workplace Climate, Evolution Community Resources for Early Career Researchers 2020 (ECR ²), virtual |
| 2020 | Moderator Fireside ECR Chat, ECR ² , virtual |

Outreach

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| 2022 | Awardee Graduate School Awards Ceremony, The Ohio State University, Columbus, OH., USA |
| 2021–2022 | Mentor Woodsworth Mentorship Program, University of Toronto, Canada [☞]Mentee: Alanna Kong, University of Toronto (2021-2022) |
| 2020–2022 | Mentor Graduate Student Mentorship Initiative Mentor, Científico Latino [☞]Mentee: Devansh Pandey, University of Texas at Austin (2021-2022) |
| 2019–2021 | Mentor Department of EEOB Graduate Mentoring, The Ohio State University, OH., USA [☞]Mentee: McKenna Molnar, The Ohio State University (2020-2021) |
| 2020 | Invited Panelist EEOB 8894: EEOB Graduate Seminar, The Ohio State University, virtual |
| 2020 | Invited Guest Translational Data Analytics Institute Kickoff Event, College of Arts and Sciences, The Ohio State University, Columbus, OH., USA |
| 2019 | Volunteer Museum of Biological Diversity's Open House, The Ohio State University, OH., USA |
| 2016 | Volunteer Biologist Kuang Si Butterfly Park, Ban Thapene, Luang Prabang District, Laos |

Skills

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| Programming | UNIX, R, Python, Julia, HTML, JavaScript |
| Typesetting | L ^A T _E X and Overleaf, R Markdown, Jupyter Notebook |
| OS | Mac OS X, Microsoft Windows |
| Others | Geneious Prime, Adobe Illustrator, Microsoft Offices, iWorks, iMovie |
| Languages | English (Fluent), Korean (Native), Japanese (Intermediate) |

Grants and Awards

All in US Dollars unless stated. †Canadian Dollar; ‡Approximately converted from South Korean Won

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| 2022 | EvolCompGen Best Poster Award, ISMB, ISCB | \$100 |
| 2022 | EEOB Graduate Development Grant, The Ohio State University | Funded |
| 2022 | EEOB Graduate Evolution & Ecology Student Organization (GEES) Career Development Grant, The Ohio State University | \$200 |
| 2022 | Council of Graduate Students (CGS) Career Development Grant, The Ohio State University | \$350 |
| 2022 | The Presidential Fellowship, The Ohio State University | \$36,500 |
| 2021 | SSB Ad Hoc Funds | \$3,000 |
| 2021 | EEOB Darwin Talk Society Membership Grant, The Ohio State University | \$70 |
| 2021 | EEOB Graduate Development Grant, The Ohio State University | Funded |
| 2020 | SSE Graduate Research Excellence Grant – R.C. Lewontin Award competition | \$1,800 |
| 2020 | Funding for participation in Future of Systematics Workshop, SSB Standalone Meeting (NSF) | \$500 |
| 2019 | Funding for participation in Midwest Phylogenetics Workshop (NSF) | Funded |
| 2019 | EEOB Graduate Development Grant, The Ohio State University | Funded |

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| 2017 | Major contribution to successful grant application to National Research Foundation of Korea (2-2017-0410-001-1) PI: Dr. Yikweon Jang, Ewha Womans University, Seoul, South Korea | ‡\$500,000 |
| 2013–2015 | University of Toronto Graduate Fellowship | Funded |
| 2014 | E.M. Walker Graduate Award in Biodiversity, University of Toronto | †\$2,615 |
| 2010–2012 | University of Toronto Undergraduate Bursaries | †≈\$3,000 |

Teaching Experiences

Teaching Assistantship

The Ohio State University

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| 2021 Fall | <i>EEOB 3310</i> Evolution |
| 2021 Summer | <i>EEOB 2520</i> Human Physiology |
| 2021 Spring | <i>EEOB 3310</i> Evolution |
| 2020 Fall | <i>EEOB 3310</i> Evolution |
| 2020 Summer | <i>EEOB 3310</i> Evolution |
| 2020 Spring | <i>EEOB 3310</i> Evolution |
| 2019 Fall | <i>EEOB 3310</i> Evolution |
| 2019 Summer | <i>EEOB 1930</i> Introduction to Biological Studies–Aquatic Biology |
| 2019 Spring | <i>EEOB 3310</i> Evolution |
| 2018 Fall | <i>BIOL 1113</i> Energy Transformation and Development |

University of Toronto

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| 2015 Summer | <i>BIO 120</i> Adaptation and Biodiversity |
| 2015 Spring | <i>BIO 220</i> From Genomics to Ecosystems in a Changing World |
| 2014 Fall | <i>EEB 362</i> Macroevolution |
| 2014 Summer | <i>BIO 120</i> Adaptation and Biodiversity |
| 2014 Spring | <i>EEB 386</i> Avian Biology |
| 2013 Fall | <i>BIO 120</i> Adaptation and Biodiversity |

Miscellaneous

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| 2016 Spring | Daruma Eco-Farm, Bang Phra, Si Racha District, Chon Buri, Thailand |
| 2009 Summer | Cheong-Shim International English Camp, Ga-Pyeong, South Korea |

References

1. Prof. Dr. Laura S. Kubatko
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2. Prof. Dr. Robert W. Murphy
Sr. Curator, Herpetology
Centre for Biodiversity and Conservation Biology
Department of Natural History-Royal Ontario Museum
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