Fang-Yu Shen

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Education

Doctor of Philosophy	Mar. 2021 – Jun. 2026 (expected)
Oregon State University	
 Department of Fisheries, Wildlife, and Conservatior 	n Sciences
 Graduate Certificate in College and University Teach 	hing
• Dissertation: Evaluating the Impact of Habitat Char	nge on Avian
Population and Distribution Over the Past 50 Years	Through
Satellite Imagery with Integrated Data from eBird a	nd Professional
Scientific Datasets	
Committee Members: Douglas Robinson (major ad	lvisor), Rebecca
Hutchinson, Weng-Keen Wong, Tyler Hallman	
Master of Science	Sep. 2018 – Jul. 2020
National Taiwan University	
 School of Forestry and Resources Conservation, GPA 	A: 3.97/4.0
Thesis: Comparing the Effectiveness of Species Rich	nness Estimation
Models by Using Structured and Unstructured Citiz	en Science Data
in Taiwan	
Bachelor of Science	Sep. 2014 – Jun. 2018
National Chiayi University	
 Department of Biological Resources, GPA: 3.51/4.0 	
• Undergraduate Research: The accuracy of avian co	mmunity
monitoring program: The importance of accounting	g imperfect

Publications

detection

- Shen, F.-Y., Stanley Jothiraj, F. V., Hutchinson, R. A., Hallman, T., Curtis, J. R. and Robinson, W. D., Species Distribution Model Performance Improves When Habitat Characterizations are Centered on Detected Individuals Instead of Observers (in review). Available at http://dx.doi.org/10.2139/ssrn.5084030
- Clements, N. M., Shen, F.-Y., & Robinson, W. D. (2025). A 50-Year Perspective on Changes in a Pacific Northwest Breeding Forest Bird Community Reveals General Stability of Abundances. Diversity, 17(2), 123. <u>https://doi.org/10.3390/d17020123</u>
- Shen, F.-Y., Ding, T.-S. & Tsai, J.-S. Comparing avian species richness estimates from structured and semi-structured citizen science data. *Sci Rep* 13, 1214, 1-13 (2023). <u>https://doi.org/10.1038/s41598-023-28064-7</u>
- Robinson, W. D., Errichetti, D., Pollock, H. S., Martinez, A., Stouffer, P. C., Shen, F.-Y., & Blake, J. G. (2021). Big bird plots: Benchmarking neotropical bird communities to address questions in ecology and conservation in an era of rapid change. *Front. Ecol. Evol.*, 9:697511, 1-15 https://doi.org/10.3389/fevo.2021.697511
- Shen, F.-Y. (2020, July). Comparing the Effectiveness of Species Richness Estimation Models by Using Structured and Unstructured Citizen Science Data in Taiwan. [Master's thesis, National Taiwan University]. National Digital Library of Theses and Dissertations in Taiwan. https://hdl.handle.net/11296/83b5cg

Presentations

- Shen, F.-Y., Kellner, K. F., Hallman, T. A., Stanley Jothiraj, F. V., Hutchinson, R. A. & Robinson, W. R. (2025, August). *Improving avian abundance estimates: The advantage of species-specific over half-normal detection functions*. [Oral presentation]. American Ornithological Society Conference, St. Louis, Missouri.
- Shen, F.-Y., Stanley Jothiraj, F. V., Hallman, T. A., Hutchinson, R. A., Robinson, W. R. (2025, April). *Improving Species Distribution Models by Characterizing Habitat at Organism Locations Instead of Observer Locations*. [Oral presentation] presented at the Research Advances in Fisheries, Wildlife, and Ecology joint Symposium with College of Forestry, Corvallis, Oregon, USA.
- Shen, F.-Y., Stanley Jothiraj, F. V., Hallman, T. A., Hutchinson, R. A., W. Douglas Robinson (2025, February). *Model prediction is better when characterizing habitat on bird location than on observer location*. [Oral presentation]. Willamette Valley Bird Symposium, Corvallis, Oregon, USA.
- Shen, F.-Y., Stanley Jothiraj, F. V., Hallman, T. A., Hutchinson, R. A., W. Douglas Robinson (2024, October). *Does species distribution model performance improve when habitat sampling is centered on bird locations instead of surveyor locations?* [Oral presentation]. American Ornithological Society Conference, Estes Park, Colorado, USA.
- Shen, F.-Y., Stanley Jothiraj, F. V., Hallman, T. A., Hutchinson, R. A., W. Douglas Robinson (2024, April). *Comparing species distribution model performance on species-centered and observer-centered habitat mapping approaches*. [Poster session] presented at the Research Advances in Fisheries, Wildlife, and Ecology joint Symposium with College of Forestry, Corvallis, Oregon, USA.
- Shen, F.-Y., Tsai, J.-S. and Ding, T.-S. (2023, August). *Comparing species richness estimates from Breeding Bird Survey Taiwan and eBird* [Oral presentation]. American Ornithological Society & Society of Canadian Ornithologists Joint Conference, London, Ontario, Canada.
- Shen, F.-Y. (2023, April). *Quantifying change in avian abundance through data integration to inform perspective on the functional value of ecosystem services*. [Poster session]. Research Advances in Fisheries, Wildlife, and Ecology joint Symposium with College of Forestry, Corvallis, Oregon, USA.
- Shen, F.-Y. (2023, January). *How many birds are in Oregon?* [Oral presentation]. Willamette Valley Bird Symposium, Corvallis, Oregon, USA.
- Shen, F.-Y. (2022, May). Species distribution model to ecosystem services: quantifying birds' functional traits. Oral presentation presented at the People and Nature, Corvallis, USA
- Shen, F.-Y., Robinson, W. D. (2022, April). *Predicting suitable habitat for Western Meadowlark with eBird data in Google Earth Engine: Benefits and challenges*. [Poster session]. Research Advances in Fisheries, Wildlife, and Ecology Symposium, Corvallis, Oregon, USA.
- Tsai, J.-S. and **Shen, F.-Y.** (2020, September). *eBird as a citizen science platform for avian biodiversity monitoring*. [Oral presentation]. The Application of citizen science as a tool of monitoring biodiversity in national parks, Nantou, Taiwan
- Shen, F.-Y., Tsai, J.-S. and Ding, T.-S. (2018, August). *Calibrating breeding bird survey data: Does community detectability change through time?* [Poster session]. The meeting of the International Ornithological Congress, Vancouver, Canada.
- Shen, F.-Y., Tsai, J.-S. and Ding, T.-S. (2018, May). *The accuracy of avian community monitoring program: The importance of accounting imperfect detection.* Poster session presented at the meeting of the Taiwan Ornithological Congress, Taichung, Taiwan.

• Shen, F.-Y. and Tsai, J.-S. (2018, January). *Influences of season and habitat on species accumulation curve in bird survey*. [Poster session]. The Congress of Animal Behavior and Ecology, Hsinchu, Taiwan.

Awards & Grants

Oregon State University, Corvallis, OR	
 Scholarly Presentation Award (\$343) 	Jul. 2024
Graduate Student Travel Award (\$1000)	May 2024
 Google Earth Engine Grant for 1000 GB (\$312) 	Apr. 2024
• 2 nd place Best Graduate Poster Research Advances in Fisheries,	Apr. 2024
Wildlife, and Ecology Symposium (\$50)	
Graduate Student Travel Award (\$1000)	Aug. 2023
 2nd place in Graduate Students' Visualize Your Bibliography 	May 2023
Competition (\$500)	
• 1 st place Best Graduate Poster Research Advances in Fisheries,	Apr. 2022
Wildlife, and Ecology Symposium (\$250)	
Scholarships & Fellowship	
Oregon State University, Corvallis, OR	
 Oregon Lottery Graduate Scholarship (\$4000) 	May 2024
 Thomas G. Scott Grant Scholarship (\$1500) 	Jun. 2023
 Munson Wildlife Graduate Scholarship (\$2000) 	Jun. 2022 – Jun. 2023
Art-Sci Fellowship (\$1000)	May. 2022 – Mar. 2023
 Assistantship granted by the Department of Fisheries, 	Mar. 2021 – Mar. 2026
Wildlife, and Conservation Sciences (\$2500 monthly	
stipend)	
National Taiwan University, Taiwan	
 Scholarship for the Student Exchange Program (\$10,000) 	Sep. 2019 – Dec. 2019
 Scholarship granted by the School of Forestry and 	Sep. 2018 – Sep. 2019
Resources Conservation (\$1000)	
Research Experience	
Data Analyst	
Oregon State University, Corvallis, OR	Jun. 2023 – Present
Calculated species-specific detection function for 198 bird species over	
3 million observations through distance sampling	
 Partnered with a collaborator from Artificial Intelligence to refine the 	
accuracy of species distribution model for 198 bird species in machine	
learning from fine spatial (30 m) and temporal scale (day)	
Endemic Species Research Institute, Taiwan	Oct. – Nov. 2020
Updated and assembled over 20,000 of Breeding Bird Survey Taiwan	
data from volunteers into data repository	Max 644 2010
winistry of Science and Technology, Talwan	iviar. – Sep. 2019
 Integrated 1000 historical records from Talwan Wild Bird Federation to eBird (the largest citizen science bird database) 	
Satellite Imagery Analyst – Google Earth Engine API	

Oregon State University, Corvallis, OR

 Assembled 6 environmental predictors as TIFF files for a collaborator Assessed Enhanced Vegetation Index change in Georgia (2002 vs. 2022) from 97 bird survey sites 	Apr. 2023 Jun. 2022
Museum Curator	
Oregon State University	Sep. 2024 – Present
 Reorganized bird specimen inventory spreadsheet accordingly with 2024 Clements Checklist 	
 Executed specimen reshuffle project to place 9034 specimens accordingly with taxonomy order in 25 cabinets 	
Ornithological Field Surveys – summary for below: coordinated 34 field survey submitted over 2000 checklists to eBird	s in 16 projects and
Christmas Bird Count & Breeding Bird Survey	
 Aided Tangent Christmas Bird Count in Albany, Oregon 	Dec. 2021 – 2023
 Surveyed Breeding Bird Survey Harlan 2 route, Oregon 	Jun. 2022 – 2023
 Volunteered as a surveyor in Christmas Bird Count, Florida 	Dec. 2019
National Taiwan University	
 Cooperated in the Kinmen Birding Hotspot Area Avian Monitoring Program, a total of 57 bird species observed 	Mar. 2019
National Chiayi University	Dec. 2015 – June. 2018
 Conducted Pheasant-tailed Jacana, Eastern Grass Owl, New Year Bird Count, Black Kite, Fairy Pitta, and Russet Sparrow population monitoring surveys 	
Assessed monthly Lantan Scenic Area Avian Survey and analyzed data	
 Supported the Alishan Mountain Avian Survey for the Taiwan annual bird population report 	
Workshops	
 Gained knowledge on implementing GPU computing in research 	Apr. 2024
 Completed GitHub workshop, learned to commit changes to git repository 	Apr. 2023
 Attended the bioinformatics workshop to enhance big data analysis skills using R programming language 	Jun. 2017
 Accomplished the Avian specimen workshop, learned practical specimen-making techniques on more than 5 bird species 	Mar. 2016
 Established the Breeding Bird Survey Taiwan field survey training workshop and further initiated a survey site in Taichung City 	Jan. 2015
Symposium and Research Application	
National Chiayi University	
 Submitted abstract to International Ornithological Congress, Canada 	Aug. 2018
 Submitted scientific research proposal to the Ministry of Science and Technology, Taiwan 	Aug. 2017
Teaching Experience	
Instructor of Record	Mar. 2021 – Present

Oregon State University, Corvallis, OR.

Avian Conservation and Management (FW 451) - 3 credits

• Facilitate group discussion and engagement with enrollment of 60 students

Systematics of Birds (FW 312) – 3 credits, offered each term

- Sole instructor for all online course with enrollment of 120 students yearly since Spring 2021
- Supervised online song game development to advance the accuracy of external morphology from <u>20 bird species</u> and enhanced the accessibility of user experience
- Developed formative and summative assessments, including field identification techniques, taxonomy quizzes, presentation
- Increased 31% score on student learning experience assessment since 2021

Graduate Teaching Assistant

Oregon State University, Corvallis, OR.

Systematics of Birds (FW 312) – 3 credits, offered each Fall term

- The independence of roles stradily increased from 2021 onward; Fall 2024 solely in charge of all labs with enrollment of 28 students each year
- Facilitated group discussions, improving peer-peer interaction and students gain knowledge from colleagues
- Redesigned assessments and created a learning environment that met the goal of diversity, equity, and inclusion

Guest Lecturer Oregon State University, Corvallis, OR. Nov. 2023 & 2024 Orientation to Fisheries and Wildlife (FW 107) • Introduced learning outcomes of the Systematics of Birds (FW 312) Showcased external morphology and ecological functional traits of • 10 bird specimens **Undergraduate Committee** Feb. 2022 Oregon State University, Corvallis, OR. Mentored an undergraduate honor thesis and assisted in the • defense **Teaching Assistant** National Taiwan University, Taiwan Feb. 2019 & 2020 Taught birds, reptiles, and amphibians identification and field survey skills from the wild to approximately 60 students Feb. – Jul. 2018 National Chiayi University, Taiwan Assisted instructor to coordinate field trips and teach bird • identification skills during field trips for approximately 40 students Academia Director National Chiayi University, Taiwan

Sep. 2022 – Present

 Supervised a vertebrate academia group, leading all 20 members to empower creativities for presenting, organizing, and teamworking skills

Teaching Trainings

Oregon State University, Corvallis, OR.Apr. 2024• Enhancing teaching and learning with artificial intelligenceApr. 2024• Mentoring & supporting students in experiential learningApr. 2024

Leadership & Services

Club co-President	
Fisheries and Wildlife Graduate Student Association	Sep. 2022 – 2023
Oregon State University, Corvallis, OR.	
 Awarded \$13475 from the Department of Fisheries, Wildlife, and 	
Conservation Sciences, E. R. Jackman Friends and Alumni Club, the	
Agricultural Research Foundation, the 2023 Oregon Chapter of the	
Wildlife Society Grant, Student Organizations and Activities Grant	
 Reached 8698 total engagements on Facebook fan page through 	
advertising 2023 Winter Wildlife Field Days	
 Led regular monthly meetings for 14 officers to coordinate 	
upcoming events	
Agricultural Executive Council Representative	
Fisheries and Wildlife Graduate Student Association	Sep. 2023 – 2024
Oregon State University, Corvallis, OR	
 Served as liaison between the club and the College of Agricultural 	
Sciences Student Engagement Coordinator	
 Informed co-presidents of available funding opportunities 	
Outreach and Communication Officer	
Fisheries and Wildlife Graduate Student Association	Sep. 2021 – 2022
Oregon State University, Corvallis, OR.	
Collaborated with U.S. Fish and Wildlife Service Willamette Valley	Nov. 2021 – Mar. 2022
National Wildlife Refuge Complex to cultivate 2 hands-on activities	
in public for the Winter Wildlife Field Days	
 Successfully distributed and advertised over 25 posts and 	
increased 843% engagement rate via social media for the Winter	
Wildlife Field Days	
National Chiayi University, Taiwan	Mar. – Oct. 2016
Launched a day event for elderly home as a Public relations	
director to contact the staff and manage logistics	
Club President	
Toastmasters International National Chiayi University Club	Mar. 2017 – Jun. 2018
National Chiayi University, Taiwan	
 Awarded 1st in an international speech contest and 2^{md} in a Table Topic Speech Contest 	
 Aligned over 20 club members to arrange club meetings weekly 	
and organized cultural-related events regularly	
Symposium Director	
Research Advances in Fisheries, Wildlife, and Ecology Symposium	
Oregon State University, Corvallis, OR.	
 Attained 166 registrations and 80 abstract submissions 	Sep. 2022 – Apr. 2023
Collaborate with 12 graduate students from the College of	
Forestry to organize the joint symposium	
 Introduced background of speakers as a moderator for a session 	Jan. – Apr. 2022
Direct the outreach team to advertise over 10 different sources	

National Chiayi University, Taiwan

 Organized the 6th Symposium on Bioactivities and Diseases Prevention of Phytochemicals and Natural Products for Health as a student director 	Sep. – Nov. 2016
Volunteer Director	
National Chiayi University, Taiwan	
 Chaired as a Secretary Section Director and contact with other club directors 	Sep. 2016 – Jun. 2017
 Launched a day event for 20 elderly at a local elderly home as a General Director with patience, understanding, and enthusiastic 	Jun. – Dec. 2016
Volunteer	
Oregon State University, Corvallis, OR.	
 Secured \$640 donations for 2025 Willamette Valley Bird 	Feb. 2024
Symposium operation funds	
 Assisted Hatfield Marine Science Center with a beach clean-up 	Apr. 2022
Art Designer	
Oregon State University, Corvallis, OR.	Oct. 2022 – Jan. 2023
 Assisted art committee to design souvenirs for 250 participants in the Willamette Valley Bird Symposium – T-shirts, pint glass, tote 	
bags	
National Chiayi University, Taiwan	
 Redesigned logo and banner for the Collage of Life Science 	Oct. – Nov. 2020
 Designed logo for the Department of Biological Resources 	Jan. 2017
 Chaired as an Art Director for the 1st Russet Sparrow Conservation and Action Plan symposium in creating posters, logo design, and related artwork 	Sep. – Nov. 2016
 Chaired as a club Artistic Design Director in Amphibian and Reptile club 	Jun. 2015 – Jun. 2016

Skills

Software

Programming Language - R | JavaScript | Unix | Python High Performance Computing Cluster - Parallelization Computation Geographic Information System (GIS) - Google Earth Engine | ArcGIS pro Version Control - GitHub Microsoft Office - Excel | Word | PowerPoint Design & Art - Adobe Illustrator/Photoshop/InDesign | Canva

Analytical

Machine learning in Species Distribution Modeling | Abundance Estimation | Bayesian & Statistical Analyses | Spatial Biases Analyses

Teaching

Graduate Certificate in College and University Teaching | Backward Design Curriculum | Embodied Learning | Constructivist Learning

Wildlife Survey Techniques

Avian Survey Design | Bird Identification (visual + audio)

Communication

Excellent Public Speaking | Leadership | Organization | Time Commitment

Language

Mandarin | English

Medical

Wilderness First Aid Certificate | CPR + AED Certificate