

Education

- Doctor of Philosophy, Oregon State University, U.S.A.** Mar. 2021 – Jul. 2026 (expected)
- Department of Fisheries, Wildlife, and Conservation Sciences
 - Graduate Certificate in College and University Teaching
 - **Dissertation:** Advancing Methodological Frameworks for Species Distribution and Abundance Modeling through Integration of eBird and Professional Survey Data
- Master of Science, National Taiwan University, Taiwan** Sep. 2018 – Jul. 2020
- School of Forestry and Resources Conservation
 - **Thesis:** Comparing the Effectiveness of Species Richness Estimation Models by Using Structured and Unstructured Citizen Science Data in Taiwan
- Bachelor of Science, National Chiayi University, Taiwan** Sep. 2014 – Jun. 2018
- Department of Biological Resources
 - **Undergraduate Research:** The Accuracy of Avian Community Monitoring Program: The Importance of Accounting Imperfect Detection Probability

Publications

- **Shen, F.-Y.**, Stanley Jothiraj, F. V., Hutchinson, R. A., Hallman, T., Curtis, J. R. and Robinson, W. D. (2025). Species Distribution Model Performance Improves When Habitat Characterizations are Centered on Detected Individuals Instead of Observers. *Ecol. Indic.*, 176, 1-12 <https://doi.org/10.1016/j.ecolind.2025.113546>.
- 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. <https://doi.org/10.3390/d17020123>
- **Shen, F.-Y.**, Ding, T.-S. & Tsai, J.-S (2023). Comparing avian species richness estimates from structured and semi-structured citizen science data. *Sci Rep* 13, 1214, 1-13 <https://doi.org/10.1038/s41598-023-28064-7>
- 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>

Awards & Recognition

Scholarships & Fellowships

Oregon State University, Corvallis, OR

- David B. and Georgia Leupold Marshall Wildlife Graduate Scholarship (\$3000) Aug. 2025
- 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 & Science Fellowship (\$1000) May. 2022 – Mar. 2023
- Assistantship granted by the Department of Fisheries, Wildlife, and Conservation Sciences (\$2500 monthly stipend) Mar. 2021 – Mar. 2026

National Taiwan University, Taiwan

- Scholarship for the Student Exchange Program (\$10,000) Sep. 2019 – Dec. 2019
- Scholarship granted by the School of Forestry and Resources Conservation (\$1000) Sep. 2018 – Sep. 2019

Awards

Oregon State University, Corvallis, OR

- Scholarly Presentation Award Jul. 2025
- Scholarly Presentation Award Jul. 2024
- Graduate Student Travel Award May 2024
- Google Earth Engine Grant for 1000 GB Apr. 2024
- 2nd place Best Graduate Poster Research Advances in Fisheries, Wildlife, and Ecology Symposium Apr. 2024
- Graduate Student Travel Award Aug. 2023
- 2nd place in Graduate Students' Visualize Your Bibliography Competition May 2023
- 1st place Best Graduate Poster Research Advances in Fisheries, Wildlife, and Ecology Symposium Apr. 2022

Research Experience

Data Analyst

Oregon State University, Corvallis, OR

Jun. 2023 – Present

- Applied Bayesian framework to integrate 3 million of eBird records with professional avian surveys
- 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 (month)

Taiwan Biodiversity Research Institute, Taiwan

Oct. – Nov. 2020

- Updated and assembled over 20,000 of Breeding Bird Survey Taiwan data from volunteers into data repository

Ministry of Science and Technology, Taiwan

Mar. – Sep. 2019

- Integrated 1000 historical records from Taiwan 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 GeoTIFF files for a collaborator Apr. 2023
- Assessed Enhanced Vegetation Index change in Georgia (2002 vs. 2022) from 97 bird survey sites Jun. 2022

Museum Curator

Oregon State University, Corvallis, OR

Sep. 2024 – Mar. 2025

- 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 35 field surveys in 16 projects and submitted over 2200 checklists to eBird

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 – 2025
- Volunteered as a surveyor in Christmas Bird Count, Florida Dec. 2019

National Taiwan University, Taiwan

- Cooperated in the Kinmen Birding Hotspot Area Avian Monitoring Program, a total of 57 bird species observed Mar. 2019

National Chiayi University, Taiwan

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

Scientific 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, USA.
- **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.

Teaching Experience

My teaching philosophy centers on fostering inclusive, experiential learning environments that engage students through active participation and the development of problem-solving skills.

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) (online) – 3 credits, offered each term

- Sole instructor for all online courses with enrollment of 120 students yearly since Spring 2021
- Supervised online song game development to advance the accuracy of external morphology from [20 bird species](#) 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.

Sep. 2022 – Present

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

- The independence of roles steadily increased from 2021 onward; Fall 2024 solely in charge of all labs with enrollment of 28 students each year
- Led 2 off-campus field trips each term, sharing eBird checklists
- Facilitated in class group discussions, improving peer-peer interaction
- Redesigned assessments and created a learning environment that met the goal of diversity, equity, and inclusion

National Taiwan University, Taiwan

Feb. 2019 & 2020

Wildlife Survey & Sampling Techniques – 1 credit, offered each summer term

- Taught birds, reptiles, and amphibians identification and field survey skills from the wild to approximately 60 students

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

Undergraduate Teaching Assistant

National Chiayi University, Taiwan

Feb. – Jul. 2018

- Assisted instructor to coordinate field trips and teach bird identification skills during field trips for approximately 40 students

Academia Director

National Chiayi University, Taiwan

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

Feb. – Jun. 2017

Leadership & Service

Publication Review Service

- Reviewed a manuscript for the journal *Ecology and Evolution*

Sep. 2025

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 event from U.S. Fish & Wildlife Service
- 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.

<ul style="list-style-type: none"> • Collaborated with U.S. Fish and Wildlife Service Willamette Valley 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 event from U.S. Fish & Wildlife Service 	Nov. 2021 – Mar. 2022
<p><i>National Chiayi University, Taiwan</i></p> <ul style="list-style-type: none"> • Launched a day event for elderly home as a Public relations director to contact the staff and manage logistics 	Mar. – Oct. 2016
<p>Club President Toastmasters International National Chiayi University Club <i>National Chiayi University, Taiwan</i></p> <ul style="list-style-type: none"> • Awarded 1st in an international speech contest and 2nd in a Table Topic Speech Contest • Aligned over 20 club members to arrange club meetings weekly and organized cultural-related events regularly 	Mar. 2017 – Jun. 2018
<p>Symposium Director <i>Research Advances in Fisheries, Wildlife, and Ecology Symposium</i> <i>Oregon State University, Corvallis, OR.</i></p> <ul style="list-style-type: none"> • Achieved 166 registrations and 80 abstract submissions • Collaborated with 12 graduate students from the College of Forestry to organize the joint symposium • Introduced background of speakers as a moderator for a session • Direct the outreach team to advertise over 10 different sources 	Sep. 2022 – Apr. 2023
<p><i>National Chiayi University, Taiwan</i></p> <ul style="list-style-type: none"> • Organized the 6th Symposium on Bioactivities and Diseases Prevention of Phytochemicals and Natural Products for Health as a student director 	Jan. – Apr. 2022 Sep. – Nov. 2016
<p>Volunteer Director <i>National Chiayi University, Taiwan</i></p> <ul style="list-style-type: none"> • Chaired as a Secretary Section Director and contact with other club directors • Launched a day event for 20 elderly at a local elderly home as a General Director with patience, understanding, and enthusiastic 	Sep. 2016 – Jun. 2017 Jun. – Dec. 2016
<p>Volunteer <i>Oregon State University, Corvallis, OR.</i></p> <ul style="list-style-type: none"> • Secured \$640 donations for 2025 Willamette Valley Bird Symposium operation funds • Assisted Hatfield Marine Science Center with a beach clean-up 	Feb. 2024 Apr. 2022
<p>Art Designer <i>Oregon State University, Corvallis, OR.</i></p> <ul style="list-style-type: none"> • Assisted art committee to design souvenirs for 250 participants in the Willamette Valley Bird Symposium – T-shirts, pint glass, tote bags 	Oct. 2022 – Jan. 2023
<p><i>National Chiayi University, Taiwan</i></p> <ul style="list-style-type: none"> • Redesigned logo and banner for the Collage of Life Science • Designed logo for the Department of Biological Resources 	Oct. – Nov. 2020 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

Professional Development

Scientific Workshops

- Completed applied hierarchical modelling for species distribution & abundance workshop, obtained skills in occupancy, abundance, data integration modelling in Bayesian + frequentist framework Oct. 2025
- Accomplished academic writing workshop to improve scientific writing skills Aug. 2025
- Gained applicable 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

Teaching Trainings

Oregon State University, Corvallis, OR.

- Implementing AI in person and online teaching Feb. 2026
- Refining course syllabus with clear artificial intelligence (AI) guidelines Feb. 2026
- Enhancing teaching and learning with AI Apr. 2024
- Mentoring & supporting students in experiential learning Apr. 2024

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 | Data Integration | Spatial Biases Analyses | Satellite Imagery 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 (native) | English (fluent) | Spanish (basic)

Medical

Wilderness First Aid Certificate | CPR + AED Certificate

Professional References

Dr. W. Douglas Robinson (professor)

- Department of Fisheries, Wildlife, and Conservation Sciences, Oregon State University
- douglas.robinson@oregonstate.edu

Dr. Rebecca Hutchinson (associate professor)

- Department of Engineering and Computer Science, Oregon State University
- rebecca.hutchinson@oregonstate.edu

Dr. Tyler Hallman (assistant professor)

- Department of Wildlife Ecology & Conservation, Bangor University
- t.hallman@bangor.ac.uk