

Department Address:
104 Nash Hall
Corvallis, OR 97331, U.S.A.

Fang-Yu Shen

shenf@oregonstate.edu | (+541) 602-3986 | linkedin.com/in/fangyushen | bettyshen.org

Education

Doctor of Philosophy Mar. 2021 – Jun. 2026 (expected)

Oregon State University

- *Department of Fisheries, Wildlife, and Conservation Sciences*
- *Graduate Certificate in College and University Teaching*
- **Dissertation:** Evaluating the Impact of Habitat Change on Avian Population and Distribution Over the Past 50 Years Through Satellite Imagery with Integrated Data from eBird and Professional Scientific Datasets
- **Committee Members:** Douglas Robinson (major advisor), Rebecca Hutchinson, Weng-Keen Wong, Tyler Hallman

Master of Science

Sep. 2018 – Jul. 2020

National Taiwan University

- *School of Forestry and Resources Conservation, GPA: 3.97/4.0*
- **Thesis:** Comparing the Effectiveness of Species Richness Estimation Models by Using Structured and Unstructured Citizen 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 community monitoring program: The importance of accounting imperfect detection

Publications

- **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). <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>
- **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

- **Fang-Yu Shen**, Fiona Victoria Stanley Jothiraj, Tyler A. Hallman, Rebecca A. Hutchinson, 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.

- **Fang-Yu Shen**, Fiona Victoria Stanley Jothiraj, Tyler A. Hallman, Rebecca A. Hutchinson, 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.
- **Fang-Yu Shen**, Jo-Szu Tsai and Tzung-Su Ding (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.
- **Fang-Yu Shen** (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.
- **Fang-Yu Shen** (2023, January). *How many birds are in Oregon?* [Oral presentation]. Willamette Valley Bird Symposium, Corvallis, Oregon, USA.
- **Fang-Yu Shen** (2022, May). *Species distribution model to ecosystem services: quantifying birds' functional traits*. Oral presentation presented at the People and Nature, Corvallis, USA
- **Fang-Yu Shen**, 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.
- Jo-Szu Tsai and **Fang-Yu Shen** (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
- **Fang-Yu Shen**, Jo-Szu Tsai and Tzung-Su Ding. (2018, August). *Calibrating breeding bird survey data: Does community detectability change through time?* [Poster session]. The meeting of the International Ornithological Congress, Vancouver, Canada.
- **Fang-Yu Shen**, Jo-Szu Tsai and Tzung-Su Ding. (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.
- **Fang-Yu Shen** and Jo-Szu Tsai. (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

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| • Graduate Student Travel Award (\$1000) | Oct. 2024 |
| • Google Earth Engine Grant for 1000 GB (\$312) | Apr. 2024 |
| • 2 nd place Best Graduate Poster Research Advances in Fisheries, Wildlife, and Ecology Symposium (\$50) | Apr. 2024 |
| • Graduate Student Travel Award (\$1000) | Aug. 2023 |
| • 2 nd place in Graduate Students' Visualize Your Bibliography Competition (\$500) | May 2023 |
| • 1 st place Best Graduate Poster Research Advances in Fisheries, Wildlife, and Ecology Symposium (\$250) | Apr. 2022 |

Scholarships & Fellowship

Oregon State University, Corvallis, OR

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|---|-----------------------|
| • 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, Wildlife, and Conservation Sciences (\$2500 monthly stipend) Mar. 2021 – Mar. 2026
- National Taiwan University, Taiwan*
- Scholarship for the Student Exchange Program (\$10000) Sep. 2019 – Dec. 2019
 - Scholarship granted by the School of Forestry and Resources Conservation (\$1000) Sep. 2018 – Sep. 2019

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

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 TIFF files for a collaborator Apr. 2023
- Assessed Enhanced Vegetation Index change in Georgia (2002 vs. 2022) from 97 bird survey sites Jun. 2022

Ornithological Field Surveys – summary for below: coordinated 34 field surveys in 16 projects and submitted over 2000 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 – 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

- Conducted Pheasant-tailed Jacana, Eastern Grass Owl, New Year Bird Count, Black Kite, Fairy Pitta, and Russet Sparrow population monitoring surveys Dec. 2015 – June. 2018
- 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.

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 [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

Sep. 2022 – Present

Oregon State University, Corvallis, OR.

Systematics of Birds (FW 312) – 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 25 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

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

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 creativities for presenting, organizing, and teamworking skills

Feb. – Jun. 2017

Teaching Trainings

Oregon State University, Corvallis, OR.

- Enhancing teaching and learning with artificial intelligence
- Mentoring & supporting students in experiential learning

Apr. 2024

Apr. 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 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

Nov. 2021 – Mar. 2022

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 2nd 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 Symposium operation funds Feb. 2024
- Assisted Hatfield Marine Science Center with a beach clean-up Apr. 2022

Art Designer

Oregon State University, Corvallis, OR.

- 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

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 | 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