

# YUE SHI PH.D.

I am a highly accomplished bioinformatician with extensive academic experience in developing and executing complex DNA/RNA research projects. My expertise in bioinformatics and data science is demonstrated through a strong publication record in genomics with lead authorship, presentations at prestigious conferences, and my role as a peer reviewer for several respected academic journals. As a bioinformatics scientist, I am interested in all aspects of genomics and bioinformatics, with a particular focus on evolution, liquid biopsies, interpretable machine learning, and the development of automated, reproducible NGS workflows.

## EDUCATION

- |      |   |                  |
|------|---|------------------|
| 2019 | ● <b>Ph.D., Biology</b><br>University of Washington             | 📍 Seattle, WA    |
| 2013 | ● <b>M.S., Ecology</b><br>Oean University of China              | 📍 Qingdao, China |
| 2010 | ● <b>B.S., Biological Sciences</b><br>Ocean University of China | 📍 Qingdao, China |

## RESEARCH EXPERIENCE

- |                      |   |
|----------------------|---|
| Current<br> <br>2022 | ● <b>Scientist I</b><br>Department of Human Oncology, University of Wisconsin - Madison<br>📍 Remote |
|----------------------|---|
- Optimized a pan-cancer targeted DNA sequencing panel.
  - Developed bioinformatics pipelines to call somatic variants and copy number alterations using circulating cell-free DNA.
  - Characterized the features of tumor-derived fragments in cell-free DNA.
  - Identified novel targets for cancer treatment development by utilizing machine learning and big data mining
  - Conducted survival analyses and estimated circulating tumor DNA fractions for clinical trials.
  - Automated routine tasks for NGS data preprocessing and analysis, specifically for RNA-seq and targeted DNA-seq.
  - Mentored MD/PhD students on data science projects.



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## CONTACT

- 📍 Omak, WA
- ✉ [Gmail](#)
- 🐦 [Twitter](#)
- 📄 [GitHub](#)
- in [LinkedIn](#)

## SKILLS

R/RStudio

Quarto/R Markdown

Bash

Git/GitHub

Snakemake

ChatGPT/Code Interpreter

NGS Analyses

Made with the R package  
[pagedown](#).

The source code is available [on github.com/melodysyue/CV\\_YS](https://github.com/melodysyue/CV_YS).

Last updated on 2023-09-17.

2022  
|  
2020



### Postdoctoral Fellow

College of Fisheries and Ocean Sciences, University of Alaska  
Fairbanks

📍 Remote

- Developed a bioinformatics pipeline to detect structural variants.
- Conducted genome scan analyses within a comparative genomics framework.
- Developed SNP panels to improve the resolution of population structure for fisheries management.
- Developed a bioinformatics pipeline to estimate the number of contributing individuals in DNA mixture samples.

2020  
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2019



### Postdoctoral Research Scientist

College of Natural Resources, University of Wisconsin - Stevens Point

📍 Remote

- Conducted reduced-representation sequencing library preparation for approximately 2,900 samples.
- Developed normalization protocols using the OT-2 liquid handling robot.
- Trained master's students in DNA metabarcoding bioinformatics pipelines.

2019  
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2012



### Graduate Research Assistant

Department of Biology, University of Washington

📍 Seattle, WA

- Enhanced the laboratory's high-throughput sequencing capacity by establishing experimental design guidelines, optimizing library preparation protocols, managing reference databases, and setting up bioinformatics pipelines for amplicon sequencing data.

2017  
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2016



### Project Consultant

BIOFAB, University of Washington

📍 Seattle, WA

- Conducted presentations to promote BIOFAB's automated workflows and attract new clients.
- Designed and oversaw molecular cloning projects for clients.
- Gathered feedback from clients and collaborated with team members to incorporate new features into the Aquarium software.



## SELECTED PUBLICATIONS

2023



### Fragmentomic analysis of circulating tumor DNA targeted cancer panels

*Annals of Oncology*. [10.1016/j.annonc.2023.06.001](https://doi.org/10.1016/j.annonc.2023.06.001)

- Kyle T. Helzer, Marina Sharifi, Jamie M. Sperger, Yue Shi, et al.

2023



### Conserved islands of divergence associated with adaptive variation in sockeye salmon are maintained by multiple mechanisms

*Molecular Ecology*. 00, 1–21. [10.1111/mec.1712600](https://doi.org/10.1111/mec.1712600)

- Peter T. Euclide, Wesley A. Larson, Yue Shi, et al.

For a comprehensive list of publications, please visit [my ORCID profile](#)

- 2023 ● **Towards absolute abundance for conservation applications: estimating the number of contributors via microhaplotype genotyping of mixed-DNA samples**  
*Molecular Ecology Resources*. 00: 1-13. [10.1111/1755-0998.13816](https://doi.org/10.1111/1755-0998.13816)  
 · Yue Shi, Cory M. Dick, Kirby Karpan, et al.
- 2023 ● **Gene flow influences the genomic architecture of local adaptation in six riverine fish species**  
*Molecular Ecology (FROM THE COVER)*. 32: 1549-1566. [10.1111/mec.16317](https://doi.org/10.1111/mec.16317)  
 · Yue Shi, Kristen L. Bouska, Garrett J. McKinney, et al.
- 2022 ● **High-density genomic data reveal fine-scale population structure and pronounced islands of adaptive divergence in lake whitefish (*Coregonus clupeaformis*) from Lake Michigan**  
*Evolutionary Applications*. 15: 1776-1797. [10.1111/eva.13475](https://doi.org/10.1111/eva.13475)  
 · Yue Shi, Jared J. Homola, Peter T. Euclide, et al.
- 2022 ● **A chromosomal inversion may facilitate adaptation despite periodic gene flow in a freshwater fish**  
*Ecology and Evolution*. 12: e8898. [10.1002/ece3.8898](https://doi.org/10.1002/ece3.8898)  
 · Matt J. Thorstensen, Peter T. Euclide, Jennifer D. Jeffrey, Yue Shi, et al.
- 2021 ● **Prey partitioning between sympatric wild carnivores revealed by DNA metabarcoding: a case study on wolf (*Canis lupus*) and coyote (*Canis latrans*) in northeastern Washington**  
*Conservation Genetics*. 22: 293-305. [10.1007/s10592-021-01337-2](https://doi.org/10.1007/s10592-021-01337-2)  
 · Yue Shi, Yves Hoareau, Ellen M. Reese, et al.
- 2021 ● **Shift of maternal gut microbiota of Tibetan Antelope (*Pantholops hodgsonii*) during the periparturition period**  
*Current Microbiology*. 78: 727-738. [10.1007/s00284-020-02339-y](https://doi.org/10.1007/s00284-020-02339-y)  
 · Yue Shi, Zi-Yan Miao, Jian-Ping Su, et al.
- 2021 ● **eDNA metabarcoding outperforms traditional fisheries sampling and reveals fine-scale heterogeneity in a temperate freshwater lake**  
*Environmental DNA*. 3:912-929. [10.1002/edn3.197](https://doi.org/10.1002/edn3.197)  
 · Rebecca R. Gehri, Wesley A. Larson, Kristen Gruenthal, Nicholas M. Sard, Yue Shi



## ACADEMIC SERVICES



### Peer Reviewer

- Philosophical Transactions of the Royal Society B
- Molecular Ecology
- JCI Insight
- PeerJ
- Journal of Mammalogy
- Frontiers in Marine Science
- Current Microbiology



## CONFERENCE PARTICIPATION



### Oral Presentation

- 151<sup>th</sup> American Fisheries Society (AFS) Annual Meeting
- 150<sup>th</sup> AFS Annual Meeting
- 47<sup>th</sup> Annual Alaska Chapter AFS Meeting
- 2018 North American Congress for Conservation Biology (NACCB)
- 2018 University of Washington (UW) Scholar's Studio
- 2016 3<sup>rd</sup> Conservation Biology Forum



### Poster Presentation

- 2018 Sigma Xi Annual Meeting - Big Data Symposium



### Attendee

- 2023 Hormone-Dependent Cancers Conference, Gorden Research Conference
- 2023 NCI Cancer Diagnosis Program Workshop: ctDNA in Cancer Treatment and Clinical Care

## FELLOWSHIPS AND AWARDS



### Fellows and Awards

- 2018 Washington Research Foundation - Benjamin Hall Fellowship
- 2018 UW Biostatistics Summer Institute Scholarship
- 2017 Riddiford-Truman Award
- 2016 Chester Fritz and Boeing International Fellowship for Research/Study
- 2015 Wingfield-Ramenofsky Award
- 2012 Hall International Fellowship



## Travel Awards

- 2021 AFS Genetics Section Postdoc Travel Award
- 2018 UW Biology Graduate Student Travel Grant
- 2018 Graduate and Professional Student Senate Travel Grant
- 2018 NACCB Student Travel Award