

# MICHAEL J. SIELER JR.

## Summary

- Microbiome scientist with 5+ years of experience developing and applying high-throughput molecular, computational, and statistical methods on 1000's of samples
- Research how multiple environmental factors interact with the gut microbiome to influence host health
- Robust data analytic skills in multivariate statistics and machine learning propel research experiments forward and gain data-driven insights
- Demonstrated abilities to collaborate and take leadership in cross-laboratory experiments and extra-curricular projects
- Experienced in written, oral and visual communication across scientific and public audiences

## EDUCATION

- 2020  
|  
estimated  
2025
- **Ph.D. Microbiology, minor in Biological Data Sciences**  
Oregon State University Corvallis, Oregon
- 2017  
|  
2020
- **B.Sc. Bioresource Research, options in Bioinformatics and Genomics**  
Oregon State University Corvallis, Oregon

## PROFESSIONAL EXPERIENCE

- May 2022  
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Present
- **Owner**  
MJSieler Consulting Corvallis, Oregon
- Designed, developed, and deployed educational video game software for clients to fulfill grant requirements for communicating scientific research
- Projects: Virtual Fish
- Tools: C#, Unity, Python, SQL
- Sep. 2020  
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Present
- **Graduate Research Student**  
Sharpton Lab (Oregon State University) Corvallis, Oregon
- Investigate how environmental factors (diet, toxins, pathogens) interact with the gut microbiome to impact host health using the zebrafish model organism
  - Developed multivariate statistical and bioinformatic pipelines for analyzing 100's of microbiome samples using R, Python and Command Line Tools
  - Led cross-laboratory scientific experiments from planning, design, implementation and analysis stages using 100's of zebrafish
  - Co-authored 3 scientific articles
  - Co-taught 70+ student microbiology labs
- Projects: Impacts of diet & infection, temperature & infection, and chronic antibiotic exposure on gut microbiome. Microbial Bioinformatics Hub
- Tools: R, Python, Microbial bioinformatics, multivariate statistics, machine learning, Unix/Linux, zebrafish husbandry
- Nov. 2017  
|  
Sep. 2020
- **Undergraduate Research Student**  
Sharpton & Mahmud Labs (Oregon State University) Corvallis, Oregon
- Developed and implemented novel, high-throughput gnotobiotic methods to simultaneously process +1000 zebrafish embryos
  - Identified dozens of putative bacterial antibiotic compounds
- Projects: Benzo[a]pyrene effect on zebrafish gut microbiome
- Tools: R, Microbial bioinformatics, Zebrafish husbandry, molecular wet lab techniques



## CONTACT INFO

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## SKILLS

Programming: R, Python (OOP, Numpy, SciKit, TensorFlow), C# (Unity), Git, bash/shell, SQL, HTML/CSS, Markdown/LaTeX and C++

Analysis: Hypothesis testing, Big data querying, Advanced applied statistics, Multivariate linear regression, Machine learning and Model building and selection

Bioinformatics: 16S sequencing, Metagenomics and Transcriptomics

Lab: Zebrafish husbandry and Bacterial culturing, extraction and amplification

Other: Microsoft Office Suite and Adobe Suite

Language: English, German (C1) and Spanish (A2)

## MORE INFO

- 📖 Publications
- ☰ Projects