

# Tanner Varrelman

## PhD Candidate

I am currently a graduate student at the University of Idaho, specializing in data storage, processing, visualization, and modeling. To this end, I have worked with database integration/architecture, I have created web-based data visualizations, and I have developed and fit mathematical models to biological data.

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## SKILLS

Python

Mathematica

PostgreSQL

JavaScript

R

L<sup>A</sup>T<sub>E</sub>X

MySQL

HTML

## EDUCATION

### Ph.D. Bioinformatics & Computational Biology

🏛️ University of Idaho 📅 Jan 2017 – May 2021 (expected)

• Current GPA: 3.9

### B.S. Biology

🏛️ University of Idaho 📅 2013 – 2016

• GPA: 3.71

## EXPERIENCE

### Research Assistant

🏛️ University of Idaho 📅 Jan 2017 – May 2021

- Develop mathematical models of transmissible vaccines.
- Development and management of an environmental database to aid in predictive modeling of Lassa virus in West Africa (<https://preemptlassawestafrika.ibest.uidaho.edu/res/map.php>).
- Develop python scripts to scrape and process environmental raster data from various data sources.
- Use GIS data and machine learning techniques to forecast the risk of infectious disease.

### Lab Rotation

🏛️ Northwest Knowledge Network 📅 Aug 2020 – Dec 2020

- Develop and manage a Lassa virus database consisting of both viral infection and viral sequence data.
- Create a Lassa virus dashboard that includes interactive data visualizations, filtered data download, and admin tools to insert new data into the Lassa virus database (<https://lassa.nkn.uidaho.edu>).

### Undergraduate Researcher

🏛️ University of Idaho 📅 May 2016 – Dec 2016

## PUBLICATIONS

- Basinski, Andrew et al. (Mar. 2020). "Bridging the gap: Using reservoir ecology and human serosurveys to estimate Lassa virus incidence in West Africa". In: DOI: 10.1101/2020.03.05.979658.
- Nuismer, Scott L. et al. (Sept. 2020). "Bayesian estimation of Lassa virus epidemiological parameters: Implications for spillover prevention using wildlife vaccination". In: *PLOS Neglected Tropical Diseases* 14.9, pp. 1–20. DOI: 10.1371/journal.pntd.0007920. URL: <https://doi.org/10.1371/journal.pntd.0007920>.
- Varrelman, Tanner J. et al. (2019). "Transmissible vaccines in heterogeneous populations: Implications for vaccine design". In: *One Health* 7, p. 100084. ISSN: 2352-7714. DOI: <https://doi.org/10.1016/j.onehlt.2019.100084>. URL: <http://www.sciencedirect.com/science/article/pii/S2352771418300454>.
- Basinski, Andrew J. et al. (2018). "Evaluating the promise of recombinant transmissible vaccines". In: *Vaccine* 36.5, pp. 675–682. ISSN: 0264-410X. DOI: <https://doi.org/10.1016/j.vaccine.2017.12.037>. URL: <http://www.sciencedirect.com/science/article/pii/S0264410X17317905>.

## PRESENTATIONS

- Contributed lightning talk. **Forecasting Lassa Fever**. *UI Research Computing and Data Science Symposium*. 2019.
- Contributed poster. **Transmissible vaccines in heterogeneous populations: Implications for vaccine design**. *University of Idaho IBEST Science Expo*. 2018. Tanner J. Varrelman, Andrew J. Basinski, Christopher H. Remien, Scott L. Nuismer.