

# Nathaniel Rivera Saul

sauln.github.io

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(509) 595-3259

## DEVELOPMENT EXPERIENCE

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### New Relic

*Machine Learning Software Engineer*

Portland, OR

May 2019 - Present

### Washington State University

*Graduate Research Assistant*

Vancouver, WA

Aug 2017 - May 2019

- Development of unsupervised learning techniques grounded in Topological Data Analysis.
- Developing applications of Topological Data Analysis for exploring and explaining machine learning systems.

### Pacific Northwest National Laboratory

*Visiting Graduate Researcher*

Richland, WA

May 2018 - August 2018

- Incorporated mathematically rigorous unsupervised learning methods into visual data exploration tools.
- Developed of image processing pipeline for incomplete image data using machine learning techniques.

### Rohde and Schwarz

*Software Development Engineer in Test*

Beaverton, OR

Mar 2017 - Aug 2017

### Performance Logic, Inc

*Applications Developer*

Portland, OR

Apr 2016 - Mar 2017

### Corios Group, LLC

*Junior Analytics Consultant*

Portland, OR

Jul 2015 - Apr 2016

## SKILLS

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**Languages:** Python, Javascript, C++, L<sup>A</sup>T<sub>E</sub>X

**Frameworks & Technologies:** Scikit-Learn, NumPy, Scipy, Pandas, Keras, React, Flask, pytest, Git, Sphinx

## EDUCATION

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### Washington State University

*Masters of Science in Mathematics*

Vancouver, WA

May 2019

### University of Hawai'i at Mānoa

*Bachelor of Arts in Mathematics*

Honolulu, HI

June 2015

## PROJECTS

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**Scikit-TDA** (scikit-tda.org): I develop, curate, and maintain a suite of Python libraries for Topological Data Analysis intended for industry and academic data scientists.

## VOLUNTEER EXPERIENCE

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**HackOregon:** Data Scientist with the Disaster Relief team.

**Cascadia Wild:** Camera maintenance crew.

**PyCon 2017:** Volunteer as speaker runner.

## ACADEMIC WORK

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N. Saul, and D. L. Arendt, *Explainable Machine Learning with Topological Data Analysis*. Demo in VISxAI Workshop at IEEE Vis 2018. Berlin, Germany, October 2018.

E. Corbett, N. Saul, and M. Pirrung, *Interactive Machine Learning Heuristics* in Learning from Users Workshop at IEEE Vis 2018. Berlin, Germany, October 2018.

C. Tralie, N. Saul, and R. Barr-on, *Ripser.py, A Lean Persistent Homology Library for Python* in The Journal of Open Source Software, September 2018.

L. McInnes, J. Healy, N. Saul, and L. Groberger, *UMAP: Uniform Manifold Approximation and Projection* in The Journal of Open Source Software, September 2018.

B. Krishnamoorthy, N. Saul, and B. Wang, *Stitch Fix for Mapper* in Young Researchers Forum at International Symposium on Computational Geometry. Budapest, Hungary, June 2018.

M. Fahad, N. Saul, Y. Guo, and B. Bingham, *Robotic Simulation of Dynamic Plume Tracking by Unmanned Surface Vessels*, in Proceedings of IEEE International Conference on Robotics and Automation, Seattle, WA, May 2015.