Nathaniel Rivera Saul

sauln.github.io

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(509) 595-3259

Development Experience

New Relic — Portland, OR

Machine Learning Software Engineer — *May 2019 - Present*

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

Washington State University — Vancouver, WA

Graduate Research Assistant — *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 — Richland, WA

Visiting Graduate Researcher — *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 — Beaverton, OR

Software Development Engineer in Test — *Mar 2017 - Aug 2017*

- Maintained end-to-end test framework for radio-communication hardware in Python and C++.
- Extended tests infrastructure to accomodate new signal processing algorithms and new hardware.

Performance Logic, Inc — Portland, OR

Applications Developer — *Apr 2016 - Mar 2017*

- Implemented xUnit port and automated testing system for a proprietary script language.
- Designed and developed user interface and data schemas for hospital reporting system.

Skills

Languages: Python, Javascript, C++, LaTeX

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

Education

Washington State University — Vancouver, WA

Masters of Science in Mathematics — *May 2019*

University of Hawai'i at Mānoa — Honolulu, HI

Bachelor of Arts in Mathematics — *June 2015*

Projects

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.

Academic Work

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. Großerger, *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.