








# Spencer Riley

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## Development Experience —

C Javascript Python R

Bash HTML

sklearn TensorFlow

Docker Flask GCloud GitHub

Raspberry Pi Arduino

## Currently Learning —

Java

TensorFlow Quantum

QISKit Kubernetes

Android

## Work History

### Present

05 Sep 2017

#### Research Intern

Institute of Complex Additive Systems Analysis

The position involved tasks regarding a variety of different projects around the theme of complex systems analysis. As a part of a team, I have worked on projects regarding data preprocessing for language detection models, analysis of RF and Bluetooth models, and Internet-Of-Things research and development.

16 Aug 2017

06 Sep 2016

#### High School Work Study

National Security Agency

The position required a thorough background check, federal investigation including a polygraph, as part of the application in order to obtain Top Secret security clearance. Most of the tasks that were assigned revolved around clerical work, specifically inventory and data transfer requests added with Inspector General inspection preparations.

## Education

May 2022

Aug 2017

#### B.Sc. Physics

New Mexico Institute of Mining and Technology

Astrophysics and Atmospheric Physics Option

Minor in Mathematics

GPA: 3.26

## Publications

### Under Review

#### Atmospheric Precipitable Water and its Correlation with Clear Sky Infrared Temperature Observations

Vicki Kelsey, Spencer Riley, Kenneth Minschwaner

Atmospheric Measurement Techniques

10.5194/amt-2021-130

## Presentations

Jan 2020

Boston, MA

#### Atmospheric Precipitable Water and its Correlation with Clear Sky Infrared Temperature Readings

Vicki Kelsey, Spencer Riley

American Meteorological Society Annual Meeting 100

Nov 2019

Providence, RI

#### Atmospheric Precipitable Water and its Correlation with Clear Sky Infrared Temperature Readings: Data Analysis

Spencer Riley, Vicki Kelsey

Physics Congress 2019

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## Development Projects

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### AtmosAccess:

A Python package to retrieving atmospheric data. The goal of this project is to easily connect with the NOAA Data Access API and the Suominet database to consolidate PMAT dependencies.

Python atmospheric data

### pacviz:

A R package comprised of informal, radial data visualizations for regression and comparative analysis.

**docs:** `pacviz.sriley.dev`

R visualization

### Precipitable-Water Model Analysis Tool:

An open source software suite for the analysis of precipitable water.

**docs:** `docs.pmat.app`

R Python Docker  
regression analysis

### SALSA Mobile App:

A mobile application that displays astronomical, solar, and meteorological data based on user location.

**docs:** `salsa.sriley.dev`

Java Android

## Research Projects

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### Present

Jan 2019

### The Precipitable Water Project

This research is based on developing a computational model of the relationship between daily precipitable water measurements and the atmospheric temperature. The goal of this research is to develop and utilize the relationship using low-cost instrumentation to deduce the amount of precipitable water from the effective temperature.

**Collaborators:** *Vicki Kelsey, Dr. Kenneth Minschwaner*

**Documentation Page:** `docs.pmat.app`

### Present

Sept 2021

### Some Analysis for Looking at the Sun's Atmosphere

A project that aims to develop methods and utilities for observing the Sun's photosphere and outer atmosphere via low-cost instrumentation. A major milestone for this project is the development of the SALSA mobile application which will display data regarding astronomical objects, the weather, and solar information.

**Documentation Page:** `salsa.sriley.dev`