PRAHLAD SIWAKOTI

Materials Physicist Data Scientist

225-210(0199)
github.com/siwa-p
Harrisburg, PA
prahlad-siwakoti

SUMMARY

I am an experimental Materials physicist turned Data Scientist. My research focused in synthesizing quantum thin film materials which are otherwise inaccessible in Nature in search for novel phases rooted in the fundamental physics. I have used data from a wide range of measurements sources to analyze and investigate these phases of matter throughout my career and presented my findings through publications in academic journals and research conferences. I am looking forward to integrate my educational experience, research background and programming tools to solve complex problems.

SKILLS

Languages:	R, SQL, Python
Version Control:	Git/Github
Visualization:	ggplot, Matplotlib, R-Shiny
Machine Learning:	Sci-kit Learn, Tensorflow, Pytorch
Query:	SQL
Additional Skills:	Object Oriented Programming Debugging

DATA SCIENCE EXPERIENCE

9/2023 – 7/2024 **Data Scientist Apprenticeship** **Nashville Software School**

- Wrangled data and performed exploratory data analysis using Python's pandas library and R's tidyverse packages
- Created data visualizations using matplotlib, seaborn, and ggplot2
- Performed geospatial analysis using geopandas and folium
- Gathered data through APIs and webscraping
- Retrieved and analyzed data using PostgreSQL and sqlalchemy
- Built and evaluated statistical and machine learning models using the scikit-learn and statsmodels libraries
- Applied natural language processing using the nltk and spaCy libraries
- Performed network analysis on graph data using Neo4j
- Built and deployed interactive data visualizations using the R Shiny library
- Source code version control with Git/GitHub
- Project management/tracking with GitHub project boards and issue tracking
- Interacted with AWS using the CLI and ssh

PROFESSIONAL EXPERIENCE

11/2021 – 12/2023 **PostDoctoral Researcher** **University of Tennessee at Knoxville**

- Designed and executed experiments in the field of Quantum thin films, creating novel functional properties in artificial structures. Successfully completed projects resulted in publications in reputable academic journals.
- Wrote successful synchrotron beamline proposals and performed experiments on site in Advanced Photon Source, Argonne National Lab
- Developed and maintained a data analysis pipeline for synchrotron data using Python and R
- Wrote python scripts to simulate observed data and to perform statistical analysis
- Collaborated with researchers from various disciplines to analyze, interpret data and deduce conclusions
- Provided mentorship and training to graduate students with research, instrumentation, and troubleshooting

01/2018 – 11/2021 **Graduate Research Assistant** **Louisiana State University, Baton Rouge**

- Explored non-trivial physics of transition metal oxide perovskite thin films with respect to their symmetry and growth orientation and studied various two-dimensional defects.
- Provided training to undergraduate students with research, instrumentation, and troubleshooting

PROJECTS

Final-Capstone **Air Quality: Machine learning models applied to air quality data** **LINK**

Constructed a predictive model for air-quality monitoring from data obtained from inexpensive air-sensors by PurpleAir and various meteorological data.I have utilized various tree-based spatio-temporal models as well as neural networks to predict the air quality.

Skills: Time-Series Analysis, Spatial regression, Kriging interpolation, Machine Learning, Deep Learning, Data Visualization

Midcourse-Capstone **Wildland fires and their effects on visitation data in US National Parks** **LINK**

Created an interactive R Shiny app of various National Parks in the US featuring wildfire events in the past to visualize the effect of these events in the park visitation statistics.

Skills: ARIMA forecasting, R Shiny, Data Wrangling, Data Cleaning, webscraping

EDUCATION

01/2024 – Present **Masters in Data Science (Online)** **University of Texas at Austin**
Courses taken: Machine Learning, Probability and Statistical Inference, Data visualization, Algorithms, Advanced Predictive Models, Deep Learning, Natural Language Processing, ReInforced Learning, Data Science for Health.
Graduation date: Fall 2024

09/2023 - Present **Data Science Apprenticeship** **Nashiville Software School, Nashville, TN**
Intensive part-time boot-camp focusing on data science fundamentals and problem solving
Graduation date : June, 2024

08/2015 - 11/2021 **PhD in Physics** **Louisiana State University, Baton Rouge, LA**
Dissertation:
Effects of Structure, Crystallographic Orientation, and Dimensionality on Emergent Properties of Transition Metal Oxide Thin Films

08/2011- 03/2014 **Masters of Science in Physics** **Tribhuvan University, Kathmandu, Nepal**
Dissertation:
First-Principles Study of Neutral ($(N_2)_n$) and Singly Cationic ($(N_2)_m^+$) Molecular Nitrogen Clusters; (n = 1, 2 and m = 1, 2, 3, 4, 5 and 6)

PEER REVIEWED PUBLICATIONS

Google Scholar : ***Prahlad Siwakoti***