Kiran Khanal, PhD

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Skills:

- **Advanced:** *Python* (pandas, numpy, scikit-learn, Tensorflow, Keras, Data Transformation, exploratory data analysis, Data Exploration, Feature extraction/Engineering, Linear Modeling, SVM, PCA, Tree-based modeling, Ensemble learning, Regression, Classification, predictive analysis)
  Data Visualization (matplotlib, seaborn, Plotly, VMD)
  NLP (NLTK, Tf-idf, Sentiment Analysis, Spam Detection, Text Classification, text analysis)
  Graphical Network Analysis (NetworkX, Stellargraph, Node2Vec)
  Model deployment (Django, Digitalocean cloud)
  Web scraping (Selenium, Scrapy, Beautifulsoup)
  SQL, Git, MATLAB, C, Perl, Jupyter notebook, Spyder, Visual Studio Code, Lammps, LaTeX
  Mathematical Modeling, Shell scripting, A/B testing, Statistics, unsupervised learning
- **Experience with:** Tableau, R, Dask, pytorch, FastAI, High performance Computing, Grid search, Computer vision, Clustering, Topic Modeling, NER, Neural Network, Neo4j, Spark, Deep Learning algorithms, anomaly detection, Convolutional Neural Network, BigQuery

Experience:

SharpestMinds, Data Science Fellow Dec. 2020 – Present

- Building a real time discount shopping recommendation service using weekly flyers which recommends complementary products to pair with a recipe allowing users to plan their meals in accordance to discount grocery items. (https://bit.ly/3b5yqgC)

- The complementary product *recommendation engine* is implemented on the web app using Graph Neural Network to suggest most closely related items for users. (https://bit.ly/2NPDNrn)

Western Texas College, Physics Instructor Jun. 2016 – Jan. 2021

- Teaching Elementary Physics courses, creating assignments and interactive simulations laboratory experiments.

Department of Polymer Science
University of Akron, Research Scholar Apr. 2015 – June 2019

- Analyzed simulation data in order to characterize interfacial properties from mass density profile, orientation and binding energy of binary mixtures of halomethanes on Graphite surfaces for varying concentration of components and temperature of the system.
- Characterized structural correlations between components with radial distribution function, and molecular dynamics analyzing root mean square displacement.
- Developed a model for binary mixture of halomethanes on Graphite surface by implementing Atomistic Molecular Dynamics Simulation using LAMMPS molecular dynamics simulator package.

Lehigh Carbon Community College Aug. 2016 – Dec. 2019

Physics Instructor

- Teaching Elementary Physics courses and laboratory Experiments.

Department of Physics
University of Akron, Computational Researcher Aug. 2013 – Apr. 2015

- Developed a coarse grained lattice model and implemented Monte Carlo Simulation for polymers that exhibits liquid crystalline phase and implemented the methodology to explain complex phase transition behavior of polymers.
- Characterized structural, thermodynamic, dynamic, phase behavior, structural-property relationship of complex polymer fluids, and optimization of parallel algorithm to improve slow relaxation of dense polymers.
- Formulated mathematical expressions, performed numerical simulation and statistical analysis, and structured pair correlation to estimate ordered domain size.
- Investigated the physical factors controlling the microphase separated polymer morphology of the active layer of organic photovoltaic.

Education:

University of Akron
Ph.D., Polymer Physics, Aug. 2013

University of Michigan on Coursera
Certification on Applied Data Science with Python Specialization, Apr. 2020

Relevant Projects:

- **Women in Data Science (WiDS) Datathon**
  Predictive modeling to determine whether a patient admitted to ICU has been diagnosed with a particular type of diabetes, *Diabetes Mellitus*. (https://bit.ly/382WrTC)
- **Story Telling with Survey Data from *Kaggle Survey 2020 Challenge***
  Studied survey data closely and presented a general preview of correlation and comparison of various technical skills and education levels with age groups from participant countries, also provided shined light on gender dynamics and US respondents. (https://bit.ly/3fcbH51)
- **Predicting Property Maintenance Fines**
  Predictive modeling to find whether a given blight ticket will be paid on time using Blight Violation Data from City of Detroit. (https://bit.ly/305dS1t)
- **Prediction of Spam message of text messages using NLP**
  Exploring text messages and creating a machine learning model to predict if a message is spam or not using Natural Language Processing. (https://bit.ly/3bNctlq)
- **Salary Prediction using Network Analysis**
  Predicting the salary of employees of a company based on their email communication network using given attributes and extracting various features. (https://bit.ly/3sJene0)

Activities:

DataCamp
Data Science Courses May 2020 – Sept. 2020
Completed courses and assignments of Introduction to SQL, Git and Web Scraping.

Kaggle
Data Science courses and projects June 2019 - present

Learning Python, SQL, Machine learning models, Feature Engineering, Feature Selection, Deep learning models, and implementing those on various projects.

LinkedIn Learning

Data Science and web development courses Oct. 2020 - present
Learning Django, Web Development, Machine learning and Deep learning models.

Volunteer:

- **Python Volunteer**, Girl in tech bootcamp, Chicago, IL, Oct. 26-27, 2019
- **Science Fair Judge**, Western Reserve District 5 Science Day, Mar. 15, 2014.
- **Science Fair Judge,** Akron Public Schools' Science, Technology, Engineering and Math EXPO, 2014 and 2015.
- **Moderator**, UASIS, University of Akron, 2012 and 2013, Akron, OH.
- **Science Fair Demonstrator**, Kids' Career events, University of Akron, 2008, 2009 and 2011.