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Ashish Mishra

Data Scientist

GitHub: ashishdastro
LinkedIn: ashishdastro

PERSONAL PROJECTS

Linear Regression

<https://github.com/ashishdastro/Linear-Regression>

- created linear regression model for predicting housing prices in Boston using scikit learn

SKILLS

Tools and Languages

Python, Pandas, Numpy, Scipy, Matplotlib, Seaborn, Scikit Learn, SQL, Tensorflow, Keras, emcee, R, Git, \LaTeX , FORTRAN, Java, C/C++,

Quantitative Research

Data Cleaning, Data Visualization, Feature Engineering, Deep Learning, Machine Learning, AI, Statistics, Monte Carlo Sampling, Markov Chain Monte Carlo (MCMC)

TECHNICAL EXPERIENCE

Monte Carlo Radiation Transfer: Finite Source

Jan. 2017 — Present

PhD, University of Toledo

Toledo, Ohio

- work is in progress to increase the complexity of the point-source model to incorporate for finite size of the host star
- numerical solution for points of incidence in the atmosphere of the planets is found and matched to the expected distribution

Python Data Reduction Pipeline

Jan. 2014 — Mar. 2014

Intern, Physical Research Laboratory

Ahmedabad, India

- built python data reduction pipeline for an optical polarimeter instrument at Mount Abu Observatory
- accomplished real time image processing and data reduction

PUBLICATIONS

Using Polarimetry to Characterize Exoplanet and its Orbit

Authors: Ashish Mishra (... to be submitted)

- built a Radiative Transfer model using single scattering approximation and point-source host star for detecting and characterizing exoplanets
- generated analytic polarization phase curves for exoplanets for combinations of orbital elements
- estimated orbital parameters from their posterior distribution using a mock observation and Markov Chain Monte Carlo (MCMC) (python emcee) technique
- the resulting plots serve as a first order approximation to the more complex problem of scattering phenomena

EMPLOYMENT

Teaching Assistant

Jan. 2017 — Present

Department of Physics & Astronomy, University of Toledo

Toledo, Ohio

- brainstorm the thinking process for solving physics problems and how to do Physics and Astronomy labs for undergraduates

Satellite Image Processing for Disaster Management

Sept. 2014 — Dec. 2016

Scientist, Indian Space Research Organisation

Hyderabad, India

- planned satellite image acquisition well in advance before disaster strikes
- processed satellite images and analyzed disaster maps using Arcgis
- used statistical methods for risk assessments for floods, cyclone, etc

EDUCATION

PhD in Astronomy, University of Toledo

Jan. 2017 — Present

B. Tech. Astronomy, Indian Institute of Space Science and Technology

Aug. 2010 – May 2014

HONORS & AWARDS

Robert and Noreen Stollberg Award

University of Toledo (2021)

Ed Foster award for excellent first year students

University of Toledo (2017)