Kyle DeGrave

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Professional Experience

Fellow, Insight Data Science (Jan 2017 – March 2017)

- Developed a python module to perform topic modeling and sentiment analysis of online reviews for the Podium company. Algorithm processed 10,000 reviews in under a minute.
- Topic modeling techniques focused on n-gram analysis, part-of-speech tagging, and an implementation of the Rapid Keyword Extraction (RAKE) algorithm.
- Natural language processing was performed using Python's natural language toolkit platform.

Postdoctoral Research Scientist, NorthWest Research Associates (Jun 2015 – Present)

- Validated helioseismic methods of studying subsurface flows on the Sun using state-of-the-art numerical simulation data.
- Developed an image segmentation algorithm to automatically detect and study over one million local convective regions on the Sun.
- Developed a genetic algorithm to match surface measurements to models of solar convection.

Graduate Research Assistant, New Mexico State University (Aug 2009 – May 2015)

- Developed a data analysis pipeline at New Mexico State University to automatically process helioseismic imaging data from the Solar Dynamics Observatory.
- Wrote pipeline software in Matlab focusing heavily on time series analysis and solving inverse problems as a means of studying convection in the solar interior.
- Authored four scientific journal articles detailing this work.

Education

Ph.D. Astronomy: New Mexico State University, May 2015
M.S. Astronomy: New Mexico State University, May 2012
B.S. Physics: Michigan State University, May 2008

Technical Skills

Software & Programming Languages
Python (including Jupyter Notebooks, NumPy, Pandas, Scikit – Learn, NLTK, BeautifulSoup, Plotly, and Bokeh libraries), Matlab, Octave, LaTeX, Beamer, Github, Jekyll, Linux, OS X

Data Visualization Packages
Tableau, Bokeh, Plotly, Seaborn

Machine Learning Models
Experienced in building machine learning classification and regression models using Python's Scikit – Learn packages. Models utilize logistic regression, random forests, SVM, KNN, etc.

Honors & Awards

NMSU astronomy Zia Award for outstanding graduate student research (2014)
Two-time New Mexico Space Grant recipient (2010, 2011)