

KARL JAEHNIG, PhD

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• Innovative • Discerning • Driven • Collaborative

SKILLS

Programming	Python, Rstudio, C++
Libraries	Numpy, Scipy, SciKit-Learn, Pandas, Tensorflow, Keras, PyMC-3, EMCEE
ML Techniques	Data: Mining, Wrangling, Cleaning, Feature Extraction, Model: Selection, Validation
ML Algorithms	Nearest-Neighbor, Mixture Models, Gaussian Processes, Decision Trees, Random Forests
Neural Networks	CNN, BayesianNN, Deep-Learning, NLP
Software Dev	Github, Docker, Jupyter
Databases	SQL, SQLite-3
Visualization	Matplotlib, Bokeh, Seaborn, Plotly, Glue-Viz

EXPERIENCE

Researcher Vanderbilt University	Jan 2022 - August 2023 <i>Nashville, TN</i>
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- Constructed neural network for anomaly detection in population data
- Performed model validation of clustering pipeline with noisy synthetic data
- Mentored junior researcher on multivariate clustering project

Data Scientist Flatiron Institute	Aug 2021 - Jan 2022 <i>New York, NY</i>
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- Constructed flexible Bayesian regression framework for time-series data, <3% error
- Employed Gaussian process models for red+white noise in time-series data
- Mined data from multiple SQL databases using custom written python code

Graduate Researcher Vanderbilt University	Jan 2019 - Aug 2021 <i>Nashville, TN</i>
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- Designed unsupervised clustering pipeline for noisy data with accuracy > 98%
- Implemented python code that generate hundreds of custom SQL queries
- Performed outlier detection of identified clusters with probabilistic analysis
- Increased cluster member identification sensitivity by 11%

Graduate Researcher/Lecturer Vanderbilt University	Aug 2017 - Jan 2019 <i>Nashville, TN</i>
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- Improved anomaly detection with non-linear constraints on star populations
- Constructed Bayesian Monte Carlo inference model of time-series data
- Regularly lectured >100 person astrophysics class

EDUCATION

Ph.D. , Vanderbilt University Astrophysics	2017 - 2023
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Master of Science , Fisk University Physics	2015 - 2017
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Bachelor of Science , University of Florida Astronomy	2007 - 2011
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